

**Final  
Environmental Impact Statement  
Second Main Operating Base  
KC-46A Beddown at  
Alternative Air National  
Guard Installations**



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## RECORD OF DECISION

### ***SECOND MAIN OPERATING BASE KC-46A BEDDOWN AT ALTERNATIVE AIR NATIONAL GUARD INSTALLATIONS***

#### **INTRODUCTION**

The United States Air Force (Air Force) is issuing this Record of Decision (ROD) for the Environmental Impact Statement (EIS) titled "Second Main Operating Base (MOB 2) KC-46A Beddown at Alternative Air National Guard (ANG) Installations" (*Federal Register*, Vol. 79, No. 119, EIS No. 20140174, page 35347, 2014). In making this decision, the information, analyses, and public comments contained in the KC-46A MOB 2 Beddown Final EIS were considered, among other relevant factors and supporting materials.

This ROD is prepared in accordance with the regulations implementing the National Environmental Policy Act (NEPA), Title 42 U.S.C. §4321-4347, the President's Council on Environmental Quality (CEQ) NEPA regulations at 40 CFR, §1505.2, *Record of decision in cases requiring environmental impact statements*, and 32 CFR §989.21, implementing the Air Force Environmental Impact Analysis Process (EIAP). Specifically, this ROD:

- States the Air Force's decision (pages 1, 11);
- Identifies alternatives considered by the Air Force in reaching the decision (page 2) and specifies the alternative considered to be environmentally preferable (page 6);
- Identifies and discusses relevant factors that were considered in making the decision among the alternatives and states how those factors entered into its decision (pages 2-8); and
- States whether all practicable means to avoid or minimize environmental harm from the selected alternative were adopted, and if not, why they were not adopted, and summarizes the applicable mitigation (pages 8-10).

#### **SYNOPSIS OF DECISION**

The Air Force will beddown up to twelve (12) KC-46A Primary Aerospace Vehicles Authorized (PAA) under the National Guard Bureau (NGB) for MOB 2 at Pease Air National Guard Station (ANGS), New Hampshire.

Pease ANGS was selected as the first ANG-led KC-46A main operating base because of its highly successful existing active duty association, which would lead to the lowest active duty manpower requirement. Selection of Pease ANGS will minimize the challenge of fielding a new weapon system and avoid having to simultaneously establish a new active association. Its location in a region of high air refueling receiver demand was also a key consideration.

#### **BACKGROUND**

For more than 50 years, the KC-135 has served as the aerial refueling backbone to project U.S. global reach and combat power. Congress authorized and appropriated funds supporting the Air Force's selection of the KC-46A as the newest aerial refueling aircraft to replace a portion of the aging fleet of KC-135 Stratotankers. Congress funded a total aircraft inventory of up to 179 KC-46A aircraft by 2028 to correct deficiencies, update the fleet, enhance operations, and

increase mission effectiveness. The new KC-46A will provide updated technology designed to enhance operations and increase mission effectiveness to support Air Force, Navy, Marine Corps, and allies who rely on tanker range and flexibility to strengthen the coalition mission.

This basing action is only part of the Air Force program to replace the older tanker aircraft. This ROD focuses on the location for the NGB's KC-46A MOB 2. Under a separate decision, the Air Force prepared an EIS that supported a decision to beddown 36 KC-46A aircraft at the first Main Operating Base (MOB 1) and six to eight KC-46A aircraft at the Formal Training Unit (FTU) location.

#### **ALTERNATIVE IDENTIFICATION**

As more fully discussed in the Final EIS (pages 2-4 through 2-7, §2.2), the Air Force and NGB presented the planning conventions that described the proposed basing action tenets, force structure mix, and basing timelines. These planning conventions included the critical information that would be used to shape and inform decisions made throughout the Air Force Strategic Basing Process for KC-46A aircraft. The initial screening yielded a defined enterprise of 83 candidate bases to be evaluated for the MOB 2 beddown.

In 2012, selection criteria for the KC-46A MOB 2 beddown were approved by the Secretary of the Air Force. The approved criteria were used to screen the enterprise of 83 candidate bases to identify those bases' capacity to successfully support the MOB 2 mission. The objective criteria included mission, capacity, environmental considerations, and cost.

The Strategic Basing Process described in §2.2 of the Final EIS resulted in the identification of five alternative bases for consideration for the KC-46A MOB 2 mission. Alternatives that were carried forward for analysis in the EIS were:

- No Action
- Forbes ANGS, Kansas
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey
- Pease ANGS, New Hampshire
- Pittsburgh ANGS, Pennsylvania
- Rickenbacker ANGS, Ohio

**No Action Alternative:** As discussed in the Final EIS (page ES-8, et seq), under the No Action Alternative, the KC-46A MOB 2 beddown would not occur at any of the five action alternatives considered. There would be no change in based aircraft, use of airfields, or use of Special Use Airspace (SUA). The NGB would continue to conduct their current mission using the existing KC-135 aircraft.

**Alternative 1 - Forbes ANGS:** Forbes ANGS is home of the 190th Air Refueling Wing (190 ARW) of the Kansas Air National Guard (KS ANG). Under this alternative the 190 ARW would convert from 12 KC-135 PAA and no KC-135 Backup Aerospace Vehicle Inventory (BAI) to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Forbes ANGS, the existing KC-135 aircraft would either be relocated to other bases or retired out of the Air Force inventory, depending on the life-cycle status of each particular aircraft.

KC-46A aircraft would fly a total of 8,040 hours annually, with an Average Sortie Duration (ASD) of 4.0 hours. This would result in 2,010 sorties annually, 64 percent of which would be



performed at the home-station. It is expected that up to 1,286 sorties would be flown at Forbes Field annually under this alternative. This would be an increase of 36 percent over the 946 home-station sorties identified in 2012 (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Forbes ANG under this alternative). Based on 1,286 annual home-station sorties and an average of 11.32 operations per sortie, there would be 14,562 annual home-station operations, or an additional 4,110 airfield operations annually at Forbes Field Airport (Final EIS, Table 2.3-2). An operation consists of a single action such as a take-off, or a landing. This would increase the average daily airfield operations from 40.2 to 56.0 (Final EIS, Table 2.3-3). There would be no changes expected to departure/arrival patterns and tracks, flight profiles, and use of runways. Current noise abatement procedures would continue to be followed (Final EIS, §4.1.1, *Noise*).

Primary air refueling tracks used by the 190 ARW were discussed in the Final EIS (Table 2.3-4). There would be a change to the frequency of use due to the proposed increase in the sorties. The KC-46A has a requirement for training as a receiver aircraft (on loading fuel) and would use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). The time in the airspace for each sortie and the operational training conducted is not expected to change in any of the airspace described in the Final EIS (Table 2.3-4).

Basing the KC-46A at Forbes Field requires some construction (Final EIS, Table 2.3-5). The proposed construction would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards*. Anti-Terrorism/Force Protection (AT/FP) requirements also would be incorporated. Proposed facilities would be sited approximately as shown in the Final EIS, (page 2-13, Figure 2.3-2).

**Alternative 2 - JB MDL:** JB MDL is home of the 108th Wing (108 WG) of the New Jersey Air National Guard (NJ ANG). Under Alternative #2, the 108 WG would convert from 8 KC-135 PAA and 1 KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at 108 WG, the existing KC-135 aircraft would either be relocated to other bases or retired out of the Air Force inventory, depending on the life-cycle status of each particular aircraft.

The 108 WG currently flies 1,112 sorties annually. According to the unit's scheduling data and Air Traffic Control counts, 834 of these sorties were flown from McGuire Field, or 75 percent of the total annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield operational data collected from 2012 indicates that the 108 WG accounted for 8,340 annual operations with an average of 10 operations per sortie (Final EIS, Table 2.3-7).

Following the aircraft beddown under Alternative 2, the KC-46A aircraft would fly a total of 8,040 hours, with an ASD of 4.0 hours. This would result in 2,010 annual sorties, 75 percent of which would be performed at the home-station (McGuire Field). Thus, it is expected that up to 1,508 sorties would be flown at McGuire Field. This would be an increase of 81 percent over the baseline 834 sorties identified in the McGuire Field Noise Study (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at McGuire Field under this alternative). Based on 1,508 annual home-station sorties and an average of 11.68 operations per sortie, there would be 17,608 annual home-station operations, or an additional 9,268 airfield operations annually at McGuire Field (Final EIS, Table 2.3-8). This would increase the average daily airfield operations from 22.9 to 48.2 (Final EIS, Table 2.3-9).

There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (Final EIS, §4.2.1, Noise).

The 108 WG conducts air refueling for both training and contingency missions for the receiver aircraft. Primary air refueling tracks used by the 108 WG are described in the Final EIS (Table 2.3-10). Under Alternative #2, there would be an increase to the frequency of use of the associated airspace due to the proposed increase in the number of sorties conducted annually. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and would use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel).

Basing the KC-46A at 108 WG requires some construction (Final EIS, Table 2.3-11). The proposed construction would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards*. Anti-Terrorism/Force Protection (AT/FP) requirements also would be incorporated. Proposed facilities would be sited approximately as shown in the Final EIS, (page 2-22, Figure 2.3-4).

**Alternative 3 - Pease ANG:** Pease ANG is home of the 157th Air Refueling Wing (157 ARW) of the New Hampshire Air National Guard (NH ANG). Under Alternative #3, the 157 ARW would convert from 8 PAA KC-135 and 1 KC-135 BAI aircraft to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Pease ANG, the existing KC-135 aircraft would either be relocated to other bases or retired out of the Air Force inventory, depending on the life-cycle status of each particular aircraft.

The 157 ARW currently flies 1,382 sorties annually. According to the unit's scheduling data and airport traffic counts, 614 were flown from Portsmouth IAP, or 44 percent of the annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 157 ARW accounted for 6,140 annual operations with an average of 10.0 operations per sortie (Final EIS, Table 2.3-13). Following the aircraft beddown under Alternative #3, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties, 44 percent of which would be performed at the home-station (Pease ANG). Thus, 884 sorties would be flown at Pease ANG annually under this alternative. This would be an increase of 44.0 percent over the baseline 614 annual sorties currently flown from Pease ANG (it is assumed the same percentage of sorties would be flown away from Pease ANG under this alternative as under the current baseline conditions). Based on 884 annual home-station sorties and an average of 10.0 operations per sortie, there would be 8,840 annual home-station operations, or an additional 2,700 airfield operations annually at Portsmouth IAP (Final EIS, Table 2.3-14). This would increase the average daily airfield operations from 16.8 to 24.2 (Final EIS, Table 2.3-15). There would be no changes expected to departure/arrival patterns and tracks, flight profiles, and use of runways. Current noise abatement procedures would continue to be followed (Final EIS, §4.3.1, Noise).

Primary air refueling tracks used by the 157 WG are described in the Final EIS (Table 2.3-16). Under Alternative #3, there would be a slight change to the frequency of use of the airspace due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the



airspace for each sortie, and the operational training conducted would not be expected to change in any of the airspace described.

Under Alternative #3, the 157 ARW would implement construction projects for the conversion to 12 KC-46A PAA (Final EIS, Table 2.3-17). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements also would be incorporated.

**Alternative 4 - Pittsburgh ANG:** Pittsburgh ANG is home of the 171st Air Refueling Wing (171 ARW) of the Pennsylvania Air National Guard (PA ANG). Under Alternative #4, the 171 ARW would convert from 16 KC-135 PAA and no KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Pittsburgh ANG, the existing KC-135 aircraft would either be relocated to other bases or retired out of the Air Force inventory, depending on the life-cycle status of each particular aircraft.

The 171 ARW currently flies 1,569 sorties annually. According to the unit's scheduling data and airport traffic counts, 926 were flown from Pittsburgh IAP, or 59 percent of the total annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 171 ARW flew 6,943 airfield operations with an average of 7.5 operations per sortie during 2012 (Final EIS, Table 2.3-19). Following the aircraft beddown under Alternative #4, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties, 59 percent of which would be performed at the home-station (Pittsburgh ANG). Thus, 1,186 sorties would be flown at Pittsburgh IAP annually under this alternative. This would be an increase of 27 percent over the baseline 926 sorties currently flown at Pittsburgh IAP (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Pittsburgh IAP under this alternative). Based on 1,186 annual home-station sorties and an average of 7.78 operations per sortie, there would be 9,226 annual home-station operations, or an additional 2,283 airfield operations annually at Pittsburgh IAP (Final EIS, Table 2.3-20). This would increase the average daily airfield operations from 19.0 to 25.3 (Final EIS, Table 2.3-21). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (Final EIS, §4.4.1, Noise).

Primary air refueling tracks used by the 171 ARW are described in the Final EIS (Table 2.3-22). Under Alternative #4, there would be a slight change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will be using the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel), but the minutes in the airspace for each sortie, and the operational training conducted would not change in any of the airspace described.

The 171 ARW would also implement minor construction projects for that conversion (Final EIS, Table 2.3-23). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements would also be addressed to the extent practicable.

**Alternative 5 - Rickenbacker ANG:** Rickenbacker ANG is home of the 121st Air Refueling Wing (121 ARW) of the Ohio Air National Guard (OH ANG). Under Alternative #5, the

121 ARW would convert from 18 KC-135 PAA and no KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Rickenbacker ANG, the existing KC-135 aircraft would either be relocated to other bases or retired out of the Air Force inventory, depending on the life-cycle status of each particular aircraft.

In 2012, the 121 ARW flew 2,014 sorties. According to the unit's scheduling data and airport traffic counts, the unit flew 1,289 of these sorties from Rickenbacker IAP, or 64 percent of the total annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 121 ARW conducted 6,445 operations with an average of 5.0 operations per sortie at the airfield (Final EIS, Table 2.3-25). Following the aircraft beddown under Alternative #5, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 annual sorties, 64 percent of which would be performed at the home-station (Rickenbacker ANG). Thus, it is expected that up to 1,286 sorties would be flown at Rickenbacker IAP annually under this alternative. This would be essentially the same as the baseline 1,289 sorties (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Rickenbacker IAP under this alternative). Based on 1,286 annual home-station sorties and an average of 5.33 operations per sortie, there would be 6,857 annual home-station operations, or an additional 412 airfield operations annually at Rickenbacker IAP (Final EIS, Table 2.3-26). This would increase the average daily airfield operations from 17.7 to 18.8 (Final EIS, Table 2.3.27). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (Final EIS, §4.5.1, Noise).

Primary air refueling tracks used by the 121 ARW are described in the Final EIS (Table 2.3-28). Under Alternative #5, there would be a slight change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the airspace for each sortie and the operational training conducted would not be expected to change in any of the airspace described.

The 121 ARW would also implement minor construction projects for that conversion (Final EIS, Table 2.3-29). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements would also be addressed to the extent practicable.

#### **ENVIRONMENTALLY PREFERRED ALTERNATIVE**

The environmentally preferred alternative is considered to be the No Action Alternative. Under the No Action Alternative, the proposed aircraft beddown would not occur, and the NGB would not implement the components described above under the five Action Alternatives.

#### **PUBLIC INVOLVEMENT**

Public involvement was integral to the Air Force development of the Final EIS. Public and agency comments were received and considered, including those received during scoping, at public hearings, and during the public comment period on the Draft EIS. Comments received on the Final EIS were considered in making this decision.



Information reflecting public involvement associated with the five basing alternative locations for MOB 2 can be found in the Final EIS (pages 1-10 through 1-13, §1.5). Furthermore, Appendix B, provides public involvement documentation as well as copies of comments received during the Draft EIS public comment period. Public notices and meetings included:

- *Notice of Intent*: Published May 17, 2013 in the *Federal Register*, Volume 78, Number 96, pages 29120-29121.
- *Scoping Period*: Initiated May 17, 2013 and ended July 5, 2013. During this time, scoping meetings were held near each of the five bases in Kansas, New Jersey, New Hampshire, Pennsylvania, and Ohio.
- *Draft EIS Notice of Availability*: Published February 7, 2014 in the *Federal Register*, Volume 79, Number 26, page 7450.
- *Public Comment and Review Period*: A 45-day comment period ending March 24, 2014.
- *Public Hearings*: During the public comment and review period, five hearings were held near each of the five bases in Kansas, New Jersey, New Hampshire, Pennsylvania, and Ohio.
- *Final EIS Notice of Availability*: Published in the *Federal Register* on June 20, 2014, Volume 79, Number 119, page 35347. This initiated the mandatory 30-day waiting period prior to ROD signature.

The Air Force summarized the substantive comments received and provided responses (Final EIS, page B6-202 to B6-222, Appendix B).

#### **AGENCY COORDINATION AND CONSULTATION**

As set out more completely in the Final EIS (Appendix B), the Air Force coordinated and consulted with federal and state agencies and Federally Recognized Tribes (tribes). The federal and state agencies responsible for biological and cultural resources were contacted early in the environmental planning process and received Air Force notification of the project in May 2013. The Air Force consulted on all of the alternatives in the EIS. However, the descriptions that follow below describe only the consultations associated with the selected alternative for MOB 2; Pease ANGS.

This decision's regulatory consultations included informal consultation with the U.S. Fish and Wildlife Service (USFWS) under §7 of the Endangered Species Act. The Air Force determined through informal consultation with the USFWS that there are no federal or state threatened or endangered species in the regions of influence at Pease ANGS, and therefore, no further consultation was required.

Pursuant to §106 of the National Historic Preservation Act, the Air Force initiated consultation with the New Hampshire State Historic Preservation Office (SHPO). For the MOB 2 mission at Pease ANGS, it was determined that there would be no impacts to archaeological resources or historic properties resulting from implementation of the MOB 2 mission. The New Hampshire SHPO concurred with the determination that no archaeological resources or historic properties would be affected.

In addition to the coordination and consultation with federal agencies, the Air Force also completed government-to-government consultations with potentially affected tribes. The Air

Force has determined there are no traditional resources known to occur at Pease ANGS. For the MOB 2 mission at Pease ANGS, no adverse impacts to tribal resources are anticipated. Consultation with the one tribe associated with Pease ANGS resulted in no issues of concern with the Air Force finding of no adverse impact. The §106 consultation for the KC-46A MOB 2 mission at Pease ANGS has been completed (see Final EIS, Appendix B, page B2-3).

Pease ANGS is in a maintenance area for ozone (O<sub>3</sub>) and in a region that is designated attainment/unclassified area for all other criteria pollutants. Because the project region within Rockingham County is a maintenance area for ozone that is within a designated ozone transport region, the applicable Clean Air Act General Conformity *de minimis* thresholds for O<sub>3</sub> precursors of oxides of nitrogen (NO<sub>x</sub>) and volatile organic compounds (VOCs) are of 100 tons per year (tpy) for NO<sub>x</sub> and fifty (50) tpy for VOCs. The aggregate peak net emissions of both NO<sub>x</sub> and VOCs from construction and operations were below the applicable *de minimis* thresholds and therefore a positive general conformity determination is not required. Impacts from proposed operational and construction emissions for all other attainment criteria pollutants would be below the Prevention of Significant Deterioration threshold levels and therefore are considered not significant. Impacts from operational hazardous air pollutant (HAP) emissions are considered negligible.

#### **MITIGATIONS AND MANAGEMENT ACTIONS**

Avoiding or reducing potential environmental impacts was a consideration guiding the analysis of the KC-46A MOB 2 basing alternatives. Some management actions are built or designed into the proposed action and alternatives.

Specific management actions (i.e., those required by regulation or Air Force guidance and instructions) to facilitate the implementation of the decision were identified in the Final EIS and will be carried forward and implemented. These measures are summarized below by applicable environmental resource areas.

Given the early developmental stage of the KC-46A program, identification of new data and information relative to the KC-46A may arise and it is possible that the impacts identified in the Final EIS (pages 2-55 through 2-68, Table 2.6-2, §2.6) may be different from those expected. An understanding of various aspects that are part of a complex interrelated KC-46A operational environment may not be achieved without a more long-term process built around a continuous cycle of evaluation, learning, and improvement over time. To accommodate this continuous cycle and to track management actions within 90 days of the signature of this ROD, NGB will develop a mitigation plan to identify principal and subordinate organizations having responsibility for oversight and execution of specific mitigation and management actions. The plan will include but not be limited to the following:

- Identification of the specific actions;
- Identification of the responsible organization for each action;
- Timing for execution of the actions; and
- Definition of the adaptive management approach to be used.



Within existing parameters defined by the scope of the analysis contained in the Final EIS, the Air Force may develop an adaptive management program as part of the overarching KC-46A MOB 2 mitigation and monitoring program<sup>1</sup>, in accordance with the President's Council on Environmental Quality mitigation and monitoring guidance, and other legal and generally accepted practices. The Air Force intent is to provide flexibility in its adaptive management approach in order to comply with regulatory requirements and allow for considered adaptations. Where the proposed use of adaptations are considered, the Air Force will, before adapting, fully consider whether or not the adaptation triggers the need for more full analysis under NEPA and the Air Force's EIAP (e.g., supplementation, tiering, etc.).

### ***Mitigations***

#### ***Air Quality***

- Demolition and construction best management practices (BMPs) related to air quality will be implemented that will reduce potential impacts to air quality. They include, but are not limited to:
  - Use of water trucks or sprinkler systems to keep areas of vehicle movement damp enough to minimize the generation of fugitive dust
  - Suspension of all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and stabilize all disturbed areas with water application
  - Designation of personnel to monitor the dust control program and to increase watering, as necessary, to minimize the generation of dust
  - Covering truck loads that haul demolition debris, dirt, sand, or gravel
  - Restricting idling of equipment and trucks to a maximum of five minutes at any location
  - Using electricity from power poles instead of temporary diesel- or gasoline-powered generators wherever possible
  - Keeping construction equipment and equipment staging areas away from sensitive receptor areas (such as day care centers)

### ***Management Actions***

As described in the Final EIS, management actions applicable to Pease ANG's for the MOB 2 mission are listed below by each of the Final EIS resource areas.

#### ***Noise***

- Portsmouth IAP has published certain restrictions on flying activities that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations. The restrictions include guidance for noise abatement procedures for the airfield including, but not limited to, requiring aircraft departing the airport to maintain runway heading to 1,100 feet MSL prior to turning and not allowing aircraft to practice

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<sup>1</sup> In furtherance of NEPA's Section 101 goals to "protect, restore, and enhance the environment" (40 Code of Federal Regulations [CFR] Part 1500.1(c))

low approaches or touch-and-go landings between the hours of 11:00 p.m. and 7:00 a.m. for local based aircraft and from 9:00 p.m. to 7:00 a.m. for transient aircraft or before 12:00 on Sundays for all aircraft. The noise abatement procedures are considered voluntary for military aircraft and can be waived based on mission requirements.

#### *Safety*

- Personnel conducting construction and/or demolition activities will strictly adhere to all applicable occupational safety requirements during construction activities.

#### *Hazardous Materials and Wastes*

- Sampling for asbestos-containing material (ACM) and lead-based paint (LBP) will occur prior to demolition activities for those buildings not previously tested and materials will be handled in accordance with 40 CFR 61.40 through 157, Toxic Substances Control Act, Occupational Safety and Health Administration regulations, New Hampshire requirements, and established ANG procedures. If ACM or LBP are present, the 157 ARW will employ trained and licensed contractors to perform the ACM and/or LBP removal work and will notify the construction contractors of the presence of ACM and/or LBP so that appropriate precautions can be taken to protect the health and safety of the workers.

#### *Earth and Water Resources*

- Construction BMPs will be employed during construction activities to minimize soil movement, stabilize runoff, and generally control sedimentation. These BMPs will include, but not be limited to the development of a project specific Stormwater Pollution Prevention Plan (SWPPP), regular and documented site inspections, the installation of silt fencing and sediment traps, minimizing surficial area disturbed at any given moment, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, use of temporary detention ponds, application of water sprays to keep soil from becoming airborne, and revegetation of disturbed areas as soon as possible, as appropriate.
- Any increase in surface water runoff as a result of the proposed construction will be attenuated through the use of temporary and/or permanent drainage management features such as use of bioretention, filter strips, vegetated buffers, grassed swales, infiltration trenches, water harvesting, and other applicable BMPs. All proposed construction is outside the 100-year floodplain.
- A Notice of Intent (NOI) will be filed with the United States Environmental Protection Agency (USEPA) to obtain coverage under the Construction General Permit (General Permit No. PAG-02) prior to implementation of individual projects.


#### *Cultural Resources*

- In the case of unanticipated or inadvertent cultural resources discoveries made during proposed construction activities, the USAF will comply with Section 106 of the NHPA and Pease ANG will immediately cease all activities in the area of the discovery. The Pease ANG Environmental Manager will then immediately contact a qualified archaeologist to evaluate the discovery.

## DECISION

The Air Force will implement the Preferred Alternative and beddown up to twelve (12) KC-46A Primary Aerospace Vehicles Authorized (PAA) under the NGB for MOB 2 at Pease ANG. The first MOB 2 aircraft are scheduled for arrival at Pease ANG in Fiscal Year 2018.

Within 90 days of the date of this ROD, NGB and Pease ANG will develop a mitigation and monitoring plan that identifies principal and subordinate organizations having responsibility for oversight and execution of specific mitigation and management actions defined previously in this ROD.

  
TIMOTHY K. BRIDGES  
Deputy Assistant Secretary of the Air Force  
(Installations)

5 Aug 14





## Cover Sheet

### ***FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE SECOND MAIN OPERATING BASE (MOB 2) KC-46A BEDDOWN AT ALTERNATIVE AIR NATIONAL GUARD INSTALLATIONS***

- a. *Responsible and Cooperating Agencies:* United States Air Force, National Guard Bureau (Responsible Agencies); there are no Cooperating Agencies.
- b. *Title of Action:* Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations Environmental Impact Statement
- c. *Comments and Inquiries:* Anne Rowe, NGB/A7AM, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157, (240) 612-8859.
- d. *Designation:* Final Environmental Impact Statement (EIS)
- e. *Abstract:* This Final EIS has been prepared in accordance with the National Environmental Policy Act (NEPA). The public and agency scoping process resulted in the analysis of the following environmental resources: noise, air quality, safety, soils and water, biological resources, cultural resources, land use, infrastructure and transportation, hazardous materials and wastes, socioeconomics, and environmental justice and the protection of children. The Secretary of the Air Force proposes to beddown KC-46A aircraft for MOB 2 at one of five alternative locations. The goal of KC-46A basing and fielding is to continue to provide optimum Combatant Commander support and to efficiently meet regional and global receiver demands while replacing the KC-135 fleet. This action would involve the beddown of one KC-46A squadron consisting of 12 Primary Aerospace Vehicles Authorized (PAA), and establishing a KC-46A Main Operating Base (MOB). Concurrent with the beddown of the 12 KC-46A, 12 existing KC-135 aircraft would be retired out of the Air National Guard (ANG) fleet. The existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the United States Air Force (USAF) inventory, depending on the age and maintenance status of each aircraft. Separate documentation would be prepared if the KC-135 aircraft are relocated to another installation. The beddown of the MOB 2 KC-46A would follow the Total Force Integration (TFI) concept that was enacted into law through the passage of the 2008 Defense Authorization Act, pairing two USAF component units (host and associate) together to operate as one. In support of TFI, an active duty associate unit would be integrated with ANG personnel and equipment under any of the action alternatives, enabling joint training and execution of missions using ANG-assigned aircraft. The ANG host unit would be assigned principal responsibility of the physical resources for mission accomplishment (aircraft, equipment, facilities) and the active duty associate unit would share those resources. Five alternative ANG locations were selected for this beddown:
  - Forbes Air National Guard Station (ANGS), Kansas;
  - Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
  - Pease ANGS, New Hampshire;
  - Pittsburgh ANGS, Pennsylvania; and,
  - Rickenbacker ANGS, Ohio.

The USAF has identified Pease ANGS as the preferred alternative.



## TABLE OF CONTENTS

### VOLUME I

<b>ACRONYMS AND ABBREVIATIONS.....</b>	<b>xix</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>CHAPTER 1        PURPOSE AND NEED FOR THE PROPOSED ACTION .....</b>	<b>1-1</b>
1.1    INTRODUCTION .....	1-1
1.2    PURPOSE AND NEED FOR THE PROPOSED ACTION .....	1-3
1.2.1    Purpose of Action .....	1-3
1.2.2    Need for Action.....	1-5
1.3    BACKGROUND OF THE KC-46A .....	1-5
1.3.1    Aircraft Characteristics .....	1-5
1.3.2    Aircraft Characteristics of the KC-135 .....	1-6
1.3.3    Aircraft Characteristics of the KC-46A .....	1-7
1.3.4    Training Requirements.....	1-8
1.4    THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS .....	1-9
1.5    PUBLIC INVOLVEMENT/ENVIRONMENTAL COORDINATION .....	1-10
1.6    LEAD AND COOPERATING AGENCIES .....	1-13
1.7    ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT .....	1-13
<b>CHAPTER 2        DESCRIPTION OF THE PROPOSED ACTION AND                          ALTERNATIVES .....</b>	<b>2-1</b>
2.1    PROPOSED ACTION .....	2-1
2.1.1    Overview of the Proposed Action.....	2-1
2.1.2    Requirements of the Proposed Action .....	2-1
2.1.2.1    Aircraft Beddown/Transition .....	2-1
2.1.2.2    Facility and Infrastructure Requirements.....	2-2
2.1.2.3    Personnel Changes .....	2-3
2.1.2.4    KC-46A Operations .....	2-3
2.2    NARROWING PROCESS FOR ALTERNATIVE BASES.....	2-4
2.3    ACTION ALTERNATIVES CARRIED FORWARD .....	2-7
2.3.1    Alternative #1 – Forbes Air National Guard Station .....	2-7
2.3.1.1    Background .....	2-7
2.3.1.2    Mission.....	2-7
2.3.1.3    Aircraft Conversion.....	2-9
2.3.1.4    Airfield Operations.....	2-9
2.3.1.5    Airspace Operations .....	2-10
2.3.1.6    Construction Required .....	2-12
2.3.1.7    Personnel Changes .....	2-16
2.3.2    Alternative #2 – Joint Base McGuire-Dix-Lakehurst.....	2-16
2.3.2.1    Background .....	2-16
2.3.2.2    Mission.....	2-18
2.3.2.3    Aircraft Conversion.....	2-18
2.3.2.4    Airfield Operations.....	2-18

2.3.2.5	Airspace Operations .....	2-19
2.3.2.6	Construction Required .....	2-20
2.3.2.7	Personnel Changes .....	2-26
2.3.3	Alternative #3 – Pease Air National Guard Station .....	2-26
2.3.3.1	Background .....	2-26
2.3.3.2	Mission .....	2-28
2.3.3.3	Aircraft Conversion.....	2-28
2.3.3.4	Airfield Operations.....	2-28
2.3.3.5	Airspace Operations .....	2-29
2.3.3.6	Construction Required .....	2-31
2.3.3.7	Personnel Changes .....	2-36
2.3.4	Alternative #4 – Pittsburgh Air National Guard Station.....	2-37
2.3.4.1	Background .....	2-37
2.3.4.2	Mission.....	2-37
2.3.4.3	Aircraft Conversion.....	2-37
2.3.4.4	Airfield Operations.....	2-39
2.3.4.5	Airspace Operations .....	2-40
2.3.4.6	Construction Required .....	2-40
2.3.4.7	Personnel Changes .....	2-46
2.3.5	Alternative #5 – Rickenbacker Air National Guard Station .....	2-46
2.3.5.1	Background .....	2-46
2.3.5.2	Mission .....	2-48
2.3.5.3	Aircraft Conversion.....	2-48
2.3.5.4	Airfield Operations.....	2-48
2.3.5.5	Airspace Operations .....	2-49
2.3.5.6	Construction Required .....	2-50
2.3.5.7	Personnel Changes .....	2-54
2.4	NO ACTION ALTERNATIVE.....	2-55
2.5	IDENTIFICATION OF PREFERRED ALTERNATIVE .....	2-55
2.6	SUMMARY OF ANTICIPATED IMPACTS AMONG ALTERNATIVES .....	2-55
2.7	MITIGATION .....	2-69
<b>CHAPTER 3</b>	<b>EXISTING CONDITIONS .....</b>	<b>3-1</b>
3.1	FORBES AIR NATIONAL GUARD STATION .....	3-1
3.1.1	Noise .....	3-1
3.1.1.1	Baseline Operations .....	3-2
3.1.1.2	Runway and Flight Profiles.....	3-3
3.1.1.3	Existing Noise Environment .....	3-3
3.1.1.4	Forbes Field Airport Noise Abatement Procedures .....	3-5
3.1.1.5	Forbes Air National Guard Station Noise Complaint Procedures .....	3-5
3.1.2	Air Quality .....	3-5
3.1.2.1	Regulatory Setting.....	3-5
3.1.2.2	Climate and Meteorology.....	3-7
3.1.2.3	Regional and Local Air Pollutant Sources .....	3-7
3.1.2.4	Baseline Air Quality.....	3-8

	3.1.2.5	190 <sup>th</sup> Air Refueling Wing Emissions .....	3-9
3.1.3	Safety .....		3-10
	3.1.3.1	Ground Safety .....	3-11
	3.1.3.2	Flight Safety .....	3-12
3.1.4	Soils and Water .....		3-13
	3.1.4.1	Soils.....	3-13
	3.1.4.2	Surface Water.....	3-14
	3.1.4.3	Groundwater.....	3-14
	3.1.4.4	Floodplains.....	3-16
3.1.5	Biological Resources .....		3-16
	3.1.5.1	Vegetation .....	3-16
	3.1.5.2	Wildlife .....	3-16
	3.1.5.3	Special Status Species .....	3-17
	3.1.5.4	Wetlands.....	3-17
3.1.6	Cultural Resources .....		3-17
	3.1.6.1	Archaeological Resources.....	3-17
	3.1.6.2	Architectural Resources .....	3-17
	3.1.6.3	Traditional Resources .....	3-18
3.1.7	Land Use .....		3-18
3.1.8	Infrastructure and Transportation .....		3-21
	3.1.8.1	Potable Water System .....	3-21
	3.1.8.2	Wastewater .....	3-21
	3.1.8.3	Stormwater .....	3-21
	3.1.8.4	Electrical and Natural Gas Systems .....	3-21
	3.1.8.5	Solid Waste Management .....	3-22
	3.1.8.6	Transportation .....	3-22
3.1.9	Hazardous Materials and Waste.....		3-22
	3.1.9.1	Hazardous Materials.....	3-22
	3.1.9.2	Hazardous Waste Management.....	3-23
	3.1.9.3	Environmental Restoration Program.....	3-24
3.1.10	Socioeconomics .....		3-24
	3.1.10.1	Population and Employment.....	3-24
	3.1.10.2	Schools .....	3-26
	3.1.10.3	Housing .....	3-26
3.1.11	Environmental Justice and the Protection of Children .....		3-27
	3.1.11.1	Minority and Low-Income Populations .....	3-27
	3.1.11.2	Protection of Children.....	3-27
3.2	JOINT BASE MCGUIRE-DIX-LAKEHURST .....		3-28
	3.2.1	Noise .....	3-28
	3.2.1.1	Baseline Operations .....	3-28
	3.2.1.2	Runway and Flight Profiles.....	3-29
	3.2.1.3	Existing Noise Environment .....	3-29
	3.2.1.4	Joint Base McGuire-Dix-Lakehurst Noise Abatement Procedures .....	3-31
	3.2.1.5	Joint Base McGuire-Dix-Lakehurst Noise Complaints Procedures .....	3-31



3.2.2	Air Quality .....	3-31
3.2.2.1	Regulatory Setting.....	3-31
3.2.2.2	Climate and Meteorology.....	3-33
3.2.2.3	Regional and Local Air Pollutant Sources .....	3-34
3.2.2.4	Baseline Air Quality.....	3-34
3.2.2.5	108 <sup>th</sup> Wing Emissions .....	3-35
3.2.3	Safety .....	3-37
3.2.3.1	Ground Safety .....	3-37
3.2.3.2	Flight Safety .....	3-38
3.2.4	Soils and Water .....	3-39
3.2.4.1	Soils.....	3-39
3.2.4.2	Surface Water.....	3-40
3.2.4.3	Groundwater.....	3-42
3.2.4.4	Floodplains.....	3-42
3.2.5	Biological Resources .....	3-43
3.2.5.1	Vegetation .....	3-43
3.2.5.2	Wildlife .....	3-43
3.2.5.3	Special Status Species .....	3-44
3.2.5.4	Wetlands.....	3-44
3.2.6	Cultural Resources .....	3-45
3.2.6.1	Archaeological Resources.....	3-45
3.2.6.2	Architectural Resources .....	3-45
3.2.6.3	Traditional Resources .....	3-46
3.2.7	Land Use .....	3-46
3.2.8	Infrastructure and Transportation .....	3-47
3.2.8.1	Potable Water System .....	3-47
3.2.8.2	Wastewater.....	3-47
3.2.8.3	Stormwater .....	3-47
3.2.8.4	Electrical and Natural Gas Systems .....	3-49
3.2.8.5	Solid Waste Management .....	3-49
3.2.8.6	Transportation .....	3-49
3.2.9	Hazardous Materials and Waste.....	3-50
3.2.9.1	Hazardous Materials.....	3-50
3.2.9.2	Hazardous Waste Management.....	3-50
3.2.9.3	Environmental Restoration Program.....	3-51
3.2.10	Socioeconomics .....	3-53
3.2.10.1	Population and Employment .....	3-53
3.2.10.2	Schools .....	3-54
3.2.10.3	Housing .....	3-54
3.2.11	Environmental Justice and the Protection of Children .....	3-54
3.2.11.1	Minority and Low-Income Populations .....	3-54
3.2.11.2	Protection of Children .....	3-56
3.3	PEASE AIR NATIONAL GUARD STATION .....	3-57
3.3.1	Noise .....	3-57
3.3.1.1	Baseline Operations .....	3-57
3.3.1.2	Runway and Flight Profiles.....	3-58

3.3.1.3	Existing Noise Environment .....	3-58
3.3.1.4	Portsmouth International Airport Noise Abatement Procedures .....	3-60
3.3.1.5	Pease Air National Guard Station Noise Complaints Procedures .....	3-60
3.3.2	Air Quality .....	3-60
3.3.2.1	Regulatory Setting.....	3-60
3.3.2.2	Climate and Meteorology.....	3-62
3.3.2.3	Regional and Local Air Pollutant Sources .....	3-62
3.3.2.4	Baseline Air Quality.....	3-63
3.3.2.5	157 <sup>th</sup> Air Refueling Wing Emissions .....	3-64
3.3.3	Safety .....	3-66
3.3.3.1	Ground Safety .....	3-66
3.3.3.2	Flight Safety .....	3-67
3.3.4	Soils and Water .....	3-68
3.3.4.1	Soils.....	3-68
3.3.4.2	Surface Water.....	3-69
3.3.4.3	Groundwater.....	3-71
3.3.4.4	Floodplains.....	3-72
3.3.5	Biological Resources .....	3-72
3.3.5.1	Vegetation .....	3-72
3.3.5.2	Wildlife .....	3-72
3.3.5.3	Special Status Species.....	3-73
3.3.5.4	Wetlands.....	3-73
3.3.6	Cultural Resources .....	3-73
3.3.6.1	Archaeological Resources.....	3-73
3.3.6.2	Architectural Resources .....	3-73
3.3.6.3	Traditional Resources .....	3-73
3.3.7	Land Use .....	3-74
3.3.8	Infrastructure and Transportation .....	3-76
3.3.8.1	Potable Water System .....	3-76
3.3.8.2	Wastewater .....	3-76
3.3.8.3	Stormwater .....	3-76
3.3.8.4	Electrical and Natural Gas Systems .....	3-76
3.3.8.5	Solid Waste Management .....	3-77
3.3.8.6	Transportation .....	3-77
3.3.9	Hazardous Materials and Waste.....	3-77
3.3.9.1	Hazardous Materials.....	3-77
3.3.9.2	Hazardous Waste Management.....	3-78
3.3.9.3	Environmental Restoration Program.....	3-79
3.3.10	Socioeconomics .....	3-81
3.3.10.1	Population and Employment.....	3-81
3.3.10.2	Schools .....	3-82
3.3.10.3	Housing .....	3-82
3.3.11	Environmental Justice and the Protection of Children .....	3-82
3.3.11.1	Minority and Low-Income Populations .....	3-82

	3.3.11.2	Protection of Children .....	3-83
3.4		PITTSBURGH AIR NATIONAL GUARD STATION .....	3-84
	3.4.1	Noise .....	3-84
	3.4.1.1	Baseline Operations .....	3-84
	3.4.1.2	Runway and Flight Profiles.....	3-85
	3.4.1.3	Existing Noise Environment .....	3-86
	3.4.1.4	Pittsburgh International Airport Noise Abatement Procedures .....	3-86
	3.4.1.5	Pittsburgh International Airport Noise Complaints Procedures .....	3-86
	3.4.2	Air Quality .....	3-88
	3.4.2.1	Regulatory Setting.....	3-88
	3.4.2.2	Climate and Meteorology.....	3-89
	3.4.2.3	Regional and Local Air Pollutant Sources .....	3-90
	3.4.2.4	Baseline Air Quality.....	3-90
	3.4.2.5	171 <sup>st</sup> Air Refueling Wing Emissions .....	3-91
	3.4.3	Safety .....	3-93
	3.4.3.1	Ground Safety .....	3-93
	3.4.3.2	Flight Safety .....	3-94
	3.4.4	Soils and Water .....	3-95
	3.4.4.1	Soils.....	3-95
	3.4.4.2	Surface Water.....	3-96
	3.4.4.3	Groundwater.....	3-98
	3.4.4.4	Floodplains.....	3-98
	3.4.5	Biological Resources .....	3-98
	3.4.5.1	Vegetation .....	3-98
	3.4.5.2	Wildlife .....	3-99
	3.4.5.3	Special Status Species .....	3-99
	3.4.5.4	Wetlands.....	3-99
	3.4.6	Cultural Resources .....	3-100
	3.4.6.1	Archaeological Resources.....	3-100
	3.4.6.2	Architectural Resources .....	3-100
	3.4.6.3	Traditional Resources .....	3-100
	3.4.7	Land Use .....	3-100
	3.4.8	Infrastructure and Transportation .....	3-102
	3.4.8.1	Potable Water System .....	3-102
	3.4.8.2	Wastewater.....	3-102
	3.4.8.3	Stormwater .....	3-102
	3.4.8.4	Electrical and Natural Gas Systems .....	3-102
	3.4.8.5	Solid Waste Management .....	3-103
	3.4.8.6	Transportation .....	3-103
	3.4.9	Hazardous Materials and Waste.....	3-103
	3.4.9.1	Hazardous Materials.....	3-103
	3.4.9.2	Hazardous Waste Management.....	3-104
	3.4.9.3	Environmental Restoration Program.....	3-105
	3.4.10	Socioeconomics .....	3-107

	3.4.10.1	Population and Employment .....	3-107
	3.4.10.2	Schools .....	3-108
	3.4.10.3	Housing .....	3-108
	3.4.11	Environmental Justice and the Protection of Children .....	3-108
	3.4.11.1	Minority and Low-Income Populations .....	3-108
	3.4.11.2	Protection of Children .....	3-109
3.5		RICKENBACKER AIR NATIONAL GUARD STATION .....	3-110
	3.5.1	Noise .....	3-110
	3.5.1.1	Baseline Operations .....	3-110
	3.5.1.2	Runway and Flight Profiles.....	3-111
	3.5.1.3	Existing Noise Environment .....	3-111
	3.5.1.4	Rickenbacker International Airport Noise Abatement Procedures .....	3-113
	3.5.1.5	Rickenbacker International Airport Noise Complaints Procedures .....	3-113
	3.5.2	Air Quality .....	3-114
	3.5.2.1	Regulatory Setting.....	3-114
	3.5.2.2	Climate and Meteorology.....	3-115
	3.5.2.3	Regional and Local Air Pollutant Sources .....	3-116
	3.5.2.4	Baseline Air Quality.....	3-116
	3.5.2.5	121 <sup>st</sup> Air Refueling Wing Emissions .....	3-117
	3.5.3	Safety .....	3-119
	3.5.3.1	Ground Safety .....	3-119
	3.5.3.2	Flight Safety .....	3-120
	3.5.4	Soils and Water .....	3-121
	3.5.4.1	Soils.....	3-121
	3.5.4.2	Surface Water.....	3-121
	3.5.4.3	Groundwater.....	3-122
	3.5.4.4	Floodplains.....	3-124
	3.5.5	Biological Resources .....	3-124
	3.5.5.1	Vegetation .....	3-124
	3.5.5.2	Wildlife .....	3-124
	3.5.5.3	Special Status Species .....	3-125
	3.5.5.4	Wetlands.....	3-125
	3.5.6	Cultural Resources .....	3-126
	3.5.6.1	Archaeological Resources.....	3-126
	3.5.6.2	Architectural Resources .....	3-126
	3.5.6.3	Traditional Resources .....	3-126
	3.5.7	Land Use .....	3-127
	3.5.8	Infrastructure and Transportation .....	3-129
	3.5.8.1	Potable Water System .....	3-129
	3.5.8.2	Wastewater .....	3-129
	3.5.8.3	Stormwater .....	3-129
	3.5.8.4	Electrical and Natural Gas Systems .....	3-129
	3.5.8.5	Solid Waste Management .....	3-130
	3.5.8.6	Transportation .....	3-130

3.5.9	Hazardous Materials and Waste.....	3-130
3.5.9.1	Hazardous Materials.....	3-130
3.5.9.2	Hazardous Waste Management.....	3-131
3.5.9.3	Environmental Restoration Program.....	3-132
3.5.10	Socioeconomics .....	3-134
3.5.10.1	Population and Employment .....	3-134
3.5.10.2	Schools .....	3-135
3.5.10.3	Housing .....	3-135
3.5.11	Environmental Justice and the Protection of Children .....	3-135
3.5.11.1	Minority and Low-Income Populations .....	3-135
3.5.11.2	Protection of Children .....	3-136
<b>CHAPTER 4</b>	<b>ENVIRONMENTAL CONSEQUENCES .....</b>	<b>4-1</b>
4.1	ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION .....	4-1
4.1.1	Noise .....	4-1
4.1.1.1	Aircraft Noise.....	4-1
4.1.1.2	Construction Noise.....	4-6
4.1.1.3	Summary of Impacts .....	4-6
4.1.2	Air Quality .....	4-6
4.1.2.1	Operational Emissions .....	4-6
4.1.2.2	Construction Emissions.....	4-8
4.1.2.3	Summary of Impacts .....	4-9
4.1.3	Safety .....	4-9
4.1.3.1	Ground Safety .....	4-9
4.1.3.2	Flight Safety .....	4-10
4.1.3.3	Summary of Impacts .....	4-12
4.1.4	Soils and Water .....	4-12
4.1.4.1	Soils.....	4-12
4.1.4.2	Surface Water.....	4-13
4.1.4.3	Groundwater.....	4-13
4.1.4.4	Floodplains.....	4-15
4.1.4.5	Summary of Impacts .....	4-15
4.1.5	Biological Resources .....	4-15
4.1.5.1	Vegetation .....	4-15
4.1.5.2	Wildlife .....	4-15
4.1.5.3	Special Status Species.....	4-16
4.1.5.4	Wetlands.....	4-16
4.1.5.5	Summary of Impacts .....	4-16
4.1.6	Cultural Resources .....	4-17
4.1.6.1	Archaeological Resources.....	4-17
4.1.6.2	Architectural Resources .....	4-17
4.1.6.3	Traditional Resources .....	4-17
4.1.6.4	Summary of Impacts .....	4-18
4.1.7	Land Use .....	4-18
4.1.7.1	Summary of Impacts .....	4-19
4.1.8	Infrastructure and Transportation .....	4-21

4.1.8.1	Potable Water .....	4-21
4.1.8.2	Wastewater .....	4-21
4.1.8.3	Stormwater .....	4-21
4.1.8.4	Electrical and Natural Gas Systems .....	4-21
4.1.8.5	Solid Waste Management .....	4-22
4.1.8.6	Transportation .....	4-23
4.1.8.7	Summary of Impacts .....	4-23
4.1.9	Hazardous Materials and Waste.....	4-23
4.1.9.1	Hazardous Materials.....	4-23
4.1.9.2	Hazardous Waste Management.....	4-24
4.1.9.3	Environmental Restoration Program.....	4-25
4.1.9.4	Summary of Impacts .....	4-26
4.1.10	Socioeconomics .....	4-28
4.1.10.1	Summary of Impacts .....	4-28
4.1.11	Environmental Justice and the Protection of Children .....	4-29
4.1.11.1	Minority and Low-Income Populations .....	4-29
4.1.11.2	Protection of Children .....	4-29
4.1.11.3	Summary of Impacts .....	4-29
4.2	ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST .....	4-30
4.2.1	Noise .....	4-30
4.2.1.1	Aircraft Noise.....	4-30
4.2.1.2	Construction Noise.....	4-34
4.2.1.3	Summary of Impacts .....	4-35
4.2.2	Air Quality .....	4-35
4.2.2.1	Operational Emissions .....	4-35
4.2.2.2	Construction Emissions.....	4-37
4.2.2.3	Summary of Impacts .....	4-38
4.2.3	Safety .....	4-38
4.2.3.1	Ground Safety .....	4-38
4.2.3.2	Flight Safety .....	4-39
4.2.3.3	Summary of Impacts .....	4-41
4.2.4	Soils and Water .....	4-41
4.2.4.1	Soils.....	4-41
4.2.4.2	Surface Water.....	4-42
4.2.4.3	Groundwater.....	4-44
4.2.4.4	Floodplains.....	4-44
4.2.4.5	Summary of Impacts .....	4-44
4.2.5	Biological Resources .....	4-45
4.2.5.1	Vegetation .....	4-45
4.2.5.2	Wildlife .....	4-45
4.2.5.3	Special Status Species .....	4-46
4.2.5.4	Wetlands.....	4-46
4.2.5.5	Summary of Impacts .....	4-47
4.2.6	Cultural Resources .....	4-47
4.2.6.1	Archaeological Resources.....	4-47
4.2.6.2	Architectural Resources .....	4-48



4.2.6.3	Traditional Resources .....	4-48
4.2.6.4	Summary of Impacts .....	4-48
4.2.7	Land Use .....	4-49
4.2.7.1	Summary of Impacts .....	4-52
4.2.8	Infrastructure and Transportation .....	4-52
4.2.8.1	Potable Water .....	4-52
4.2.8.2	Wastewater .....	4-52
4.2.8.3	Stormwater .....	4-53
4.2.8.4	Electrical and Natural Gas Systems .....	4-53
4.2.8.5	Solid Waste Management .....	4-54
4.2.8.6	Transportation .....	4-54
4.2.8.7	Summary of Impacts .....	4-55
4.2.9	Hazardous Materials and Waste.....	4-55
4.2.9.1	Hazardous Materials.....	4-55
4.2.9.2	Hazardous Waste Management.....	4-56
4.2.9.3	Environmental Restoration Program.....	4-57
4.2.9.4	Summary of Impacts .....	4-58
4.2.10	Socioeconomics .....	4-60
4.2.10.1	Summary of Impacts .....	4-61
4.2.11	Environmental Justice and the Protection of Children .....	4-61
4.2.11.1	Minority and Low-Income Populations .....	4-61
4.2.11.2	Protection of Children .....	4-61
4.2.11.3	Summary of Impacts .....	4-62
4.3	ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION.....	4-63
4.3.1	Noise .....	4-63
4.3.1.1	Aircraft Noise.....	4-63
4.3.1.2	Construction Noise.....	4-67
4.3.1.3	Summary of Impacts .....	4-68
4.3.2	Air Quality .....	4-68
4.3.2.1	Operational Emissions .....	4-68
4.3.2.2	Construction Emissions.....	4-70
4.3.2.3	Summary of Impacts .....	4-71
4.3.3	Safety .....	4-71
4.3.3.1	Ground Safety .....	4-71
4.3.3.2	Flight Safety .....	4-72
4.3.3.3	Summary of Impacts .....	4-73
4.3.4	Soils and Water .....	4-74
4.3.4.1	Soils.....	4-74
4.3.4.2	Surface Water.....	4-75
4.3.4.3	Groundwater.....	4-77
4.3.4.4	Floodplains.....	4-77
4.3.4.5	Summary of Impacts .....	4-77
4.3.5	Biological Resources .....	4-77
4.3.5.1	Vegetation .....	4-77
4.3.5.2	Wildlife .....	4-78
4.3.5.3	Special Status Species .....	4-79

4.3.5.4	Wetlands.....	4-79
4.3.5.5	Summary of Impacts .....	4-79
4.3.6	Cultural Resources.....	4-80
4.3.6.1	Archaeological Resources.....	4-80
4.3.6.2	Architectural Resources .....	4-80
4.3.6.3	Traditional Resources .....	4-80
4.3.6.4	Summary of Impacts .....	4-81
4.3.7	Land Use .....	4-81
4.3.7.1	Summary of Impacts .....	4-83
4.3.8	Infrastructure and Transportation .....	4-83
4.3.8.1	Potable Water .....	4-83
4.3.8.2	Wastewater .....	4-83
4.3.8.3	Stormwater .....	4-83
4.3.8.4	Electrical and Natural Gas Systems .....	4-84
4.3.8.5	Solid Waste Management .....	4-84
4.3.8.6	Transportation .....	4-85
4.3.8.7	Summary of Impacts .....	4-86
4.3.9	Hazardous Materials and Waste.....	4-86
4.3.9.1	Hazardous Materials.....	4-86
4.3.9.2	Hazardous Waste Management.....	4-87
4.3.9.3	Environmental Restoration Program.....	4-87
4.3.9.4	Summary of Impacts .....	4-90
4.3.10	Socioeconomics .....	4-90
4.3.10.1	Summary of Impacts .....	4-91
4.3.11	Environmental Justice and the Protection of Children .....	4-91
4.3.11.1	Minority and Low-Income Populations .....	4-91
4.3.11.2	Protection of Children.....	4-91
4.3.11.3	Summary of Impacts .....	4-91
4.4	ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION.....	4-92
4.4.1	Noise .....	4-92
4.4.1.1	Aircraft Noise.....	4-92
4.4.1.2	Construction Noise.....	4-97
4.4.1.3	Summary of Impacts .....	4-97
4.4.2	Air Quality .....	4-98
4.4.2.1	Operational Emissions .....	4-98
4.4.2.2	Construction Emissions.....	4-100
4.4.2.3	Summary of Impacts .....	4-101
4.4.3	Safety .....	4-101
4.4.3.1	Ground Safety .....	4-101
4.4.3.2	Flight Safety .....	4-102
4.4.3.3	Summary of Impacts .....	4-103
4.4.4	Soils and Water .....	4-104
4.4.4.1	Soils.....	4-104
4.4.4.2	Surface Water.....	4-105
4.4.4.3	Groundwater.....	4-107
4.4.4.4	Floodplains.....	4-107

4.4.4.5	Summary of Impacts .....	4-107
4.4.5	Biological Resources .....	4-107
4.4.5.1	Vegetation .....	4-107
4.4.5.2	Wildlife .....	4-108
4.4.5.3	Special Status Species .....	4-108
4.4.5.4	Wetlands.....	4-108
4.4.5.5	Summary of Impacts .....	4-109
4.4.6	Cultural Resources .....	4-109
4.4.6.1	Archaeological Resources.....	4-109
4.4.6.2	Architectural Resources .....	4-110
4.4.6.3	Traditional Resources .....	4-110
4.4.6.4	Summary of Impacts .....	4-110
4.4.7	Land Use .....	4-111
4.4.7.1	Summary of Impacts .....	4-111
4.4.8	Infrastructure and Transportation .....	4-113
4.4.8.1	Potable Water .....	4-113
4.4.8.2	Wastewater .....	4-113
4.4.8.3	Stormwater .....	4-113
4.4.8.4	Electrical and Natural Gas Systems .....	4-113
4.4.8.5	Solid Waste Management .....	4-114
4.4.8.6	Transportation .....	4-115
4.4.8.7	Summary of Impacts .....	4-115
4.4.9	Hazardous Materials and Waste.....	4-116
4.4.9.1	Hazardous Materials.....	4-116
4.4.9.2	Hazardous Waste Management.....	4-117
4.4.9.3	Environmental Restoration Program.....	4-117
4.4.9.4	Summary of Impacts .....	4-120
4.4.10	Socioeconomics .....	4-120
4.4.10.1	Summary of Impacts .....	4-121
4.4.11	Environmental Justice and the Protection of Children .....	4-121
4.4.11.1	Minority and Low-Income Populations .....	4-121
4.4.11.2	Protection of Children .....	4-122
4.4.11.3	Summary of Impacts .....	4-122
4.5	ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION.....	4-123
4.5.1	Noise .....	4-123
4.5.1.1	Aircraft Noise.....	4-123
4.5.1.2	Construction Noise.....	4-128
4.5.1.3	Summary of Impacts .....	4-128
4.5.2	Air Quality .....	4-129
4.5.2.1	Operational Emissions .....	4-129
4.5.2.2	Construction Emissions.....	4-131
4.5.2.3	Summary of Impacts .....	4-132
4.5.3	Safety .....	4-132
4.5.3.1	Ground Safety .....	4-132
4.5.3.2	Flight Safety .....	4-133
4.5.3.3	Summary of Impacts .....	4-134

4.5.4	Soils and Water .....	4-135
4.5.4.1	Soils.....	4-135
4.5.4.2	Surface Water.....	4-135
4.5.4.3	Groundwater.....	4-138
4.5.4.4	Floodplains.....	4-138
4.5.4.5	Summary of Impacts .....	4-138
4.5.5	Biological Resources .....	4-138
4.5.5.1	Vegetation .....	4-138
4.5.5.2	Wildlife .....	4-139
4.5.5.3	Special Status Species.....	4-139
4.5.5.4	Wetlands.....	4-140
4.5.5.5	Summary of Impacts .....	4-140
4.5.6	Cultural Resources.....	4-140
4.5.6.1	Archaeological Resources.....	4-140
4.5.6.2	Architectural Resources .....	4-141
4.5.6.3	Traditional Resources .....	4-141
4.5.6.4	Summary of Impacts .....	4-142
4.5.7	Land Use .....	4-142
4.5.7.1	Summary of Impacts .....	4-145
4.5.8	Infrastructure and Transportation .....	4-145
4.5.8.1	Potable Water .....	4-145
4.5.8.2	Wastewater .....	4-145
4.5.8.3	Stormwater .....	4-145
4.5.8.4	Electrical and Natural Gas Systems .....	4-146
4.5.8.5	Solid Waste Management .....	4-146
4.5.8.6	Transportation .....	4-147
4.5.8.7	Summary of Impacts .....	4-148
4.5.9	Hazardous Materials and Waste.....	4-148
4.5.9.1	Hazardous Materials.....	4-148
4.5.9.2	Hazardous Waste Management.....	4-149
4.5.9.3	Environmental Restoration Program.....	4-149
4.5.9.4	Summary of Impacts .....	4-152
4.5.10	Socioeconomics .....	4-152
4.5.10.1	Summary of Impacts .....	4-153
4.5.11	Environmental Justice and the Protection of Children .....	4-153
4.5.11.1	Minority and Low-Income Populations .....	4-153
4.5.11.2	Protection of Children.....	4-153
4.5.11.3	Summary of Impacts .....	4-153
4.6	NO ACTION ALTERNATIVE.....	4-155
4.6.1	Noise .....	4-155
4.6.2	Air Quality .....	4-156
4.6.3	Safety .....	4-156
4.6.4	Soils and Water .....	4-156
4.6.5	Biological Resources .....	4-157
4.6.6	Cultural Resources.....	4-157
4.6.7	Land Use .....	4-157

4.6.8	Infrastructure and Transportation .....	4-158
4.6.9	Hazardous Materials and Wastes .....	4-158
4.6.10	Socioeconomics .....	4-158
4.6.11	Environmental Justice and the Protection of Children .....	4-159
<b>CHAPTER 5</b>	<b>CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES .....</b>	<b>5-1</b>
5.1	ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS .....	5-1
5.1.1	Past, Present, and Reasonably Foreseeable Actions .....	5-1
5.1.2	Cumulative Impacts .....	5-2
5.1.2.1	Noise .....	5-2
5.1.2.2	Air Quality .....	5-2
5.1.2.3	Safety .....	5-3
5.1.2.4	Soils and Water .....	5-3
5.1.2.5	Biological Resources.....	5-4
5.1.2.6	Cultural Resources .....	5-4
5.1.2.7	Land Use .....	5-5
5.1.2.8	Infrastructure and Transportation.....	5-5
5.1.2.9	Hazardous Materials and Waste.....	5-6
5.1.2.10	Socioeconomics .....	5-6
5.1.2.11	Environmental Justice and the Protection of Children.....	5-7
5.2	ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST CUMULATIVE EFFECTS .....	5-8
5.2.1	Past, Present, and Reasonably Foreseeable Actions .....	5-8
5.2.2	Cumulative Impacts .....	5-9
5.2.2.1	Noise .....	5-9
5.2.2.2	Air Quality .....	5-9
5.2.2.3	Safety .....	5-10
5.2.2.4	Soils and Water .....	5-11
5.2.2.5	Biological Resources.....	5-12
5.2.2.6	Cultural Resources .....	5-13
5.2.2.7	Land Use .....	5-13
5.2.2.8	Infrastructure and Transportation.....	5-14
5.2.2.9	Hazardous Materials and Waste.....	5-14
5.2.2.10	Socioeconomics .....	5-14
5.2.2.11	Environmental Justice and the Protection of Children.....	5-15
5.3	ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS .....	5-16
5.3.1	Past, Present, and Reasonably Foreseeable Actions .....	5-16
5.3.2	Cumulative Impacts .....	5-17
5.3.2.1	Noise .....	5-17
5.3.2.2	Air Quality .....	5-17
5.3.2.3	Safety .....	5-17
5.3.2.4	Soils and Water .....	5-18
5.3.2.5	Biological Resources.....	5-19

5.3.2.6	Cultural Resources .....	5-20
5.3.2.7	Land Use .....	5-20
5.3.2.8	Infrastructure and Transportation.....	5-20
5.3.2.9	Hazardous Materials and Waste.....	5-21
5.3.2.10	Socioeconomics .....	5-21
5.3.2.11	Environmental Justice and the Protection of Children.....	5-21
5.4	ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION	
	CUMULATIVE EFFECTS.....	5-23
5.4.1	Past, Present, and Reasonably Foreseeable Actions .....	5-23
5.4.2	Cumulative Impacts .....	5-24
5.4.2.1	Noise .....	5-24
5.4.2.2	Air Quality .....	5-25
5.4.2.3	Safety .....	5-25
5.4.2.4	Soils and Water .....	5-26
5.4.2.5	Biological Resources.....	5-27
5.4.2.6	Cultural Resources .....	5-27
5.4.2.7	Land Use .....	5-28
5.4.2.8	Infrastructure and Transportation.....	5-28
5.4.2.9	Hazardous Materials and Waste.....	5-28
5.4.2.10	Socioeconomics .....	5-29
5.4.2.11	Environmental Justice and the Protection of Children.....	5-29
5.5	ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION	
	CUMULATIVE EFFECTS.....	5-30
5.5.1	Past, Present, and Reasonably Foreseeable Actions .....	5-30
5.5.2	Cumulative Impacts .....	5-31
5.5.2.1	Noise .....	5-31
5.5.2.2	Air Quality .....	5-32
5.5.2.3	Safety .....	5-32
5.5.2.4	Soils and Water .....	5-33
5.5.2.5	Biological Resources.....	5-34
5.5.2.6	Cultural Resources .....	5-34
5.5.2.7	Land Use .....	5-35
5.5.2.8	Infrastructure and Transportation.....	5-35
5.5.2.9	Hazardous Materials and Waste.....	5-36
5.5.2.10	Socioeconomics .....	5-36
5.5.2.11	Environmental Justice and the Protection of Children.....	5-36
5.6	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES FOR ALL ALTERNATIVES .....	5-37
<b>CHAPTER 6</b>	<b>REFERENCES.....</b>	<b>6-1</b>
<b>CHAPTER 7</b>	<b>PERSONS AND AGENCIES CONTACTED .....</b>	<b>7-1</b>
<b>CHAPTER 8</b>	<b>LIST OF PREPARERS.....</b>	<b>8-1</b>
<b>INDEX.....</b>		<b>IDX-1</b>
<b>LIST OF REPOSITORIES.....</b>		<b>REPOS-1</b>
<b>GLOSSARY.....</b>		<b>GLOSS-1</b>



## TABLES

ES-1	Summary of Alternatives (Current/Proposed) .....	ES-6
ES-2	Summary of Impacts .....	ES-10
1.3-1	Comparison of KC-135 and KC-46A .....	1-5
2.3-1	Current 190 ARW KC-135 Operations at Forbes Field Airport .....	2-9
2.3-2	Proposed 190 ARW KC-46A Operations at Forbes Field Airport .....	2-10
2.3-3	Changes to 190 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-10
2.3-4	Current and Proposed Local Air Refueling Airspace Used by the 190 ARW .....	2-11
2.3-5	Proposed 190 ARW Construction Projects at Forbes Field Airport .....	2-12
2.3-6	Comparison of Currently Authorized and Proposed 190 ARW Personnel .....	2-16
2.3-7	Current 108 WG KC-135 Operations at McGuire Field .....	2-19
2.3-8	Proposed 108 WG KC-46A Operations at McGuire Field .....	2-19
2.3-9	Changes to 108 WG Airfield Operations with Proposed KC-46A Aircraft .....	2-19
2.3-10	Current and Proposed Local Air Refueling Airspace Used by the 108 WG .....	2-20
2.3-11	Proposed 108 WG Construction Projects at McGuire Field .....	2-21
2.3-12	Comparison of Currently Authorized and Proposed 108 WG Personnel .....	2-26
2.3-13	Current 157 ARW Operations at Portsmouth IAP .....	2-29
2.3-14	Proposed 157 ARW KC-46A Operations at Portsmouth IAP .....	2-29
2.3-15	Changes to 157 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-29
2.3-16	Current and Proposed Local Air Refueling Airspace Used by the 157 ARW .....	2-30
2.3-17	Proposed 157 ARW Construction Projects at Portsmouth IAP .....	2-32
2.3-18	Comparison of Currently Authorized and Proposed 157 ARW Personnel .....	2-36
2.3-19	Current 171 ARW KC-135 Aircraft Operations at Pittsburgh IAP .....	2-39
2.3-20	Proposed 171 ARW KC-46A Operations at Pittsburgh IAP .....	2-39
2.3-21	Changes to 171 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-40
2.3-22	Current and Proposed Local Air Refueling Airspace Used by the 171 ARW .....	2-41
2.3-23	Proposed 171 ARW Construction Projects at Pittsburgh IAP .....	2-42
2.3-24	Comparison of Currently Authorized and Proposed 171 ARW Personnel .....	2-46
2.3-25	Current 121 ARW KC-135 Operations at Rickenbacker IAP .....	2-48
2.3-26	Proposed 121 ARW KC-46A Aircraft Operations at Rickenbacker IAP .....	2-49
2.3-27	Changes to 121 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-49
2.3-28	Current and Proposed Local Air Refueling Airspace Used by the 121 ARW .....	2-50
2.3-29	Proposed 121 ARW Construction Projects at Rickenbacker IAP .....	2-51
2.3-30	Comparison of Currently Authorized and Proposed 121 ARW Personnel .....	2-55
2.6-1	Summary of Alternatives (Current/Proposed) .....	2-57
2.6-2	Summary of Impacts .....	2-58
3.1.1-1	Current Forbes Field Airport Annual Aircraft Operations .....	3-2
3.1.1-2	Acres within Baseline Noise Contours, Forbes Field Airport .....	3-3
3.1.2-1	Ambient Air Quality Standards .....	3-6
3.1.2-2	Regional Emissions for Shawnee County, Kansas .....	3-8
3.1.2-3	Ambient Air Monitoring Data for Topeka and Kansas City, Kansas .....	3-9
3.1.2-4	190 ARW Baseline Emissions at Forbes ANG .....	3-10
3.1.9-1	ERP Sites within the 190 ARW Installation .....	3-24
3.1.10-1	Population Growth within the Vicinity of Forbes ANG .....	3-26
3.1.10-2	Employment Data (2011) within the Vicinity of Forbes ANG .....	3-26

3.1.11-1	Population within the Vicinity of Forbes ANG	3-27
3.2.1-1	Current McGuire Field Annual Aircraft Operations	3-29
3.2.1-2	Acres within Baseline Noise Contours, McGuire Field	3-29
3.2.2-1	Ambient Air Quality Standards	3-32
3.2.2-2	Regional Emissions for Burlington and Ocean Counties, New Jersey	3-34
3.2.2-3	Ambient Air Monitoring Data for the JB MDL Area	3-35
3.2.2-4	108 WG Baseline Emissions at JB MDL	3-36
3.2.9-1	ERP Sites within the 108 WG Installation	3-51
3.2.10-1	Population Growth within the Vicinity of JB MDL	3-53
3.2.10-2	Employment Data (2011) within the Vicinity of JB MDL	3-54
3.2.11-1	Population within the Vicinity of JB MDL	3-55
3.2.11-2	Population within Baseline Noise Contours, JB MDL	3-55
3.3.1-1	Current Portsmouth IAP Annual Aircraft Operations	3-58
3.3.1-2	Acres within Baseline Noise Contours, Portsmouth IAP	3-58
3.3.2-1	Ambient Air Quality Standards	3-61
3.3.2-2	Regional Emissions for Rockingham County, New Hampshire	3-63
3.3.2-3	Ambient Air Monitoring Data for the Portsmouth Area	3-64
3.3.2-4	157 ARW Baseline Emissions at Pease ANG	3-65
3.3.9-1	ERP Sites within the 157 ARW Installation	3-79
3.3.10-1	Population Growth within the Vicinity of Pease ANG	3-81
3.3.10-2	Employment Data (2011) within the Vicinity of Pease ANG	3-81
3.3.11-1	Population within the Vicinity of Pease ANG	3-82
3.4.1-1	Current Pittsburgh IAP Annual Aircraft Operations FAR Part 150	3-85
3.4.1-2	Acres within Baseline Noise Contours, Pittsburgh IAP	3-86
3.4.2-1	Ambient Air Quality Standards	3-89
3.4.2-2	Regional Emissions for Allegheny County, Pennsylvania	3-90
3.4.2-3	Ambient Air Monitoring Data for the Pittsburgh Area	3-91
3.4.2-4	171 ARW Baseline Emissions at Pittsburgh ANG	3-92
3.4.9-1	ERP Sites within the 171 ARW Installation	3-105
3.4.10-1	Population Growth within the Vicinity of Pittsburgh ANG	3-107
3.4.10-2	Employment Data (2011) within the Vicinity of Pittsburgh ANG	3-107
3.4.11-1	Population within the Vicinity of Pittsburgh ANG	3-108
3.4.11-2	Population within Baseline Noise Contours, Pittsburgh ANG	3-109
3.5.1-1	Current Rickenbacker IAP Annual Aircraft Operations FAR Part 150	3-111
3.5.1-2	Acres within Baseline Noise Contours, Rickenbacker IAP	3-113
3.5.2-1	Ambient Air Quality Standards	3-115
3.5.2-2	Regional Emissions for Franklin County, Ohio	3-116
3.5.2-3	Ambient Air Monitoring Data for the Columbus Area	3-117
3.5.2-4	121 ARW Baseline Emissions at Rickenbacker ANG	3-118
3.5.9-1	ERP Sites within the 121 ARW Installation	3-132
3.5.10-1	Population Growth within the Vicinity of Rickenbacker ANG	3-134
3.5.10-2	Employment Data (2011) within the Vicinity of Rickenbacker ANG	3-135
3.5.11-1	Population within the Vicinity of Rickenbacker ANG	3-136
4.1.1-1	Forbes Field Airport Annual Aircraft Operations with Proposed KC-46A	4-2
4.1.1-2	Land Areas within DNL Contours at Forbes Field Airport Affected by DNL Greater than 65 dB under Baseline and Alternative #1	4-2

4.1.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 190 ARW .....	4-7
4.1.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 190 ARW .....	4-8
4.1.2-3	Annual Construction Emissions Under Alternative #1 .....	4-9
4.1.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Forbes Field Airport Boundary .....	4-19
4.2.1-1	McGuire Field Annual Aircraft Operations with Proposed KC-46A .....	4-31
4.2.1-2	Land Areas within DNL Contours at JB MDL Affected by DNL Greater than 65 dB under Baseline and Alternative #2 .....	4-31
4.2.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 108 WG Installation .....	4-36
4.2.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 108 WG .....	4-37
4.2.2-3	Annual Construction Emissions Under Alternative #2 .....	4-38
4.2.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the McGuire Field Boundary .....	4-50
4.2.11-1	Population within Alternative #2 Noise Contours, JB MDL .....	4-61
4.3.1-1	Portsmouth IAP Annual Aircraft Operations with Proposed KC-46A .....	4-64
4.3.1-2	Land Areas within DNL Contours at Portsmouth IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #3 .....	4-64
4.3.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 157 ARW .....	4-69
4.3.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 157 ARW .....	4-70
4.3.2-3	Annual Construction Emissions Under Alternative #3 .....	4-71
4.3.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Portsmouth IAP .....	4-83
4.4.1-1	Changes to Pittsburgh IAP Airfield Operations with Proposed KC-46A Based on FAR Part 150 Baseline .....	4-93
4.4.1-2	Pittsburgh ANG's Aircraft Operations with Proposed KC-46A .....	4-93
4.4.1-3	Land Areas within DNL Contours at Pittsburgh IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #4 .....	4-94
4.4.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 171 ARW .....	4-99
4.4.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 171 ARW .....	4-100
4.4.2-3	Annual Construction Emissions Under Alternative #4 .....	4-101
4.4.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Pittsburgh IAP Boundary .....	4-111
4.4.11-1	Population within Alternative #4 Noise Contours, Pittsburgh IAP .....	4-122
4.5.1-1	Changes to Rickenbacker IAP Airfield Operations with Proposed KC-46A Based on FAR Part 150 Baseline .....	4-124
4.5.1-2	Rickenbacker ANG's Aircraft Operations with Proposed KC-46A .....	4-124
4.5.1-3	Land Areas within DNL Contours at Rickenbacker IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #5 .....	4-125

4.5.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 121 ARW .....	4-130
4.5.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 121 ARW .....	4-131
4.5.2-3	Annual Construction Emissions Under Alternative #5.....	4-132
4.5.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Rickenbacker IAP Boundary .....	4-143
5.1.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Forbes ANGS.....	5-1
5.2.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for JB MDL .....	5-8
5.3.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Pease ANGS.....	5-16
5.4.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Pittsburgh ANGS .....	5-23
5.5.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Rickenbacker ANGS.....	5-30

## FIGURES

ES-1	Alternative Locations for the KC-46A ANG Beddown .....	ES-2
1.1-1	Alternative Locations for the KC-46A ANG Beddown .....	1-2
2.3-1	Regional Location Forbes ANGS .....	2-8
2.3-2	Construction Associated with Alternative #1, Forbes ANGS .....	2-13
2.3-3	Regional Location, JB MDL.....	2-17
2.3-4	Construction Associated with Alternative #2, JB MDL .....	2-22
2.3-5	Regional Location Pease ANGS.....	2-27
2.3-6	Construction Associated with Alternative #3, Pease ANGS .....	2-33
2.3-7	Regional Location, Pittsburgh ANGS.....	2-38
2.3-8	Construction Associated with Alternative #4, Pittsburgh ANGS .....	2-43
2.3-9	Regional Location Rickenbacker ANGS .....	2-47
2.3-10	Construction Associated with Alternative #5, Rickenbacker ANGS .....	2-52
3.1.1-1	Baseline DNL Noise Contours for Forbes Field Airport.....	3-4
3.1.4-1	Surface Water Features in the Vicinity of Forbes ANGS.....	3-15
3.1.7-1	DNL Noise Contours and Land Use at Forbes Field Airport .....	3-20
3.1.9-1	Environmental Restoration Program Sites at the 190 ARW Installation, Forbes Field Airport.....	3-25
3.2.1-1	Baseline DNL Noise Contours for McGuire Field .....	3-30
3.2.4-1	Surface Water Features and Wetlands in the Vicinity of McGuire Field .....	3-41
3.2.7-1	DNL Noise Contours and Land Use at McGuire Field.....	3-48
3.2.9-1	Environmental Restoration Program Sites at the 108 WG Installation, JB MDL ..	3-52
3.3.1-1	Baseline DNL Noise Contours for Portsmouth IAP .....	3-59
3.3.4-1	Surface Water Features and Wetlands in the Vicinity of Pease ANGS.....	3-70
3.3.7-1	DNL Noise Contours and Land Use at Portsmouth IAP .....	3-75
3.3.9-1	ERP Sites at the 157 ARW Installation, Portsmouth IAP .....	3-80
3.4.1-1	Baseline DNL Noise Contours for Pittsburgh IAP.....	3-87

3.4.4-1	Surface Water Features and Wetlands in the Vicinity of Pittsburgh ANG S .....	3-97
3.4.7-1	DNL Noise Contours and Land Use at Pittsburgh IAP .....	3-101
3.4.9-1	ERP Sites at the 171 ARW Installation, Pittsburgh IAP .....	3-106
3.5.1-1	Baseline DNL Noise Contours for Rickenbacker IAP .....	3-112
3.5.4-1	Surface Water Features and Wetlands in the Vicinity of Rickenbacker ANG S ....	3-123
3.5.7-1	DNL Noise Contours and Land Use at Rickenbacker IAP .....	3-128
3.5.9-1	ERP Sites at the 121 ARW Installation, Rickenbacker IAP .....	3-133
4.1.1-1	DNL Noise Contours Under Alternative #1 at Forbes Field Airport.....	4-3
4.1.1-2	Comparison of Baseline and Alternative #1 DNL Noise Contours at Forbes Field Airport.....	4-4
4.1.4-1	Surface Water Features and Proposed Construction in the Vicinity of Forbes ANG S .....	4-14
4.1.7-1	DNL Noise Contours and Land Use Under Alternative #1 at Forbes Field Airport.....	4-20
4.1.9-1	ERP Sites and Proposed Construction in the Vicinity of Forbes ANG S .....	4-27
4.2.1-1	DNL Noise Contours Under Alternative #2 at McGuire Field.....	4-32
4.2.1-2	Comparison of Baseline and Alternative #2 DNL Noise Contours at McGuire Field.....	4-33
4.2.4-1	Surface Water Features and Proposed Construction in the Vicinity of McGuire Field .....	4-43
4.2.7-1	DNL Noise Contours and Land Use Under Alternative #2 at McGuire Field.....	4-51
4.2.9-1	ERP Sites and Proposed Construction in the Vicinity of McGuire Field .....	4-59
4.3.1-1	DNL Noise Contours Under Alternative #3 at Portsmouth IAP.....	4-65
4.3.1-2	Comparison of Baseline and Alternative #3 DNL Noise Contours at Portsmouth IAP.....	4-66
4.3.4-1	Surface Water Features and Proposed Construction in the Vicinity of Pease ANG S .....	4-76
4.3.7-1	DNL Noise Contours and Land Use Under Alternative #3 at Portsmouth IAP .....	4-82
4.3.9-1	ERP Sites and Proposed Construction in the Vicinity of Pease ANG S .....	4-89
4.4.1-1	DNL Noise Contours Under Alternative #4 at Pittsburgh IAP.....	4-95
4.4.1-2	Comparison of Baseline and Alternative #4 DNL Noise Contours for Pittsburgh IAP.....	4-96
4.4.4-1	Surface Water Features and Proposed Construction in the Vicinity of Pittsburgh ANG S .....	4-106
4.4.7-1	DNL Noise Contours and Land Use Under Alternative #4 at Pittsburgh IAP .....	4-112
4.4.9-1	ERP Sites and Proposed Construction in the Vicinity of Pittsburgh ANG S .....	4-119
4.5.1-1	DNL Noise Contours Under Alternative #5 at Rickenbacker IAP .....	4-126
4.5.1-2	Comparison of Baseline and Alternative #5 DNL Noise Contours at Rickenbacker IAP .....	4-127
4.5.4-1	Surface Water Features and Proposed Construction in the Vicinity of Rickenbacker ANG S .....	4-137
4.5.7-1	DNL Noise Contours and Land Use Under Alternative #5 at Rickenbacker IAP .....	4-144
4.5.9-1	ERP Sites and Proposed Construction in the Vicinity of Rickenbacker ANG S ....	4-151

Appendices are included on CD-ROM on the inside back cover of this document.

<b>APPENDIX A</b>	<b>RESOURCE DEFINITIONS AND METHODOLOGIES</b>
<b>APPENDIX B</b>	<b>CORRESPONDENCE</b>
<b>APPENDIX C</b>	<b>BACKGROUND INFORMATION FOR THE NOISE ANALYSIS</b>
<b>APPENDIX D</b>	<b>AIR QUALITY</b>
<b>APPENDIX E</b>	<b>SPECIAL STATUS SPECIES LISTS</b>
<b>APPENDIX F</b>	<b>FINAL GENERAL CONFORMITY DETERMINATION FOR KC-46A ALTERNATIVE BEDDOWN LOCATION</b>

## ACRONYMS AND ABBREVIATIONS

°C	degree Celsius	CO <sub>2</sub>	carbon dioxide
°F	degree Fahrenheit	CO <sub>2</sub> e	carbon dioxide equivalent
µg/m <sup>3</sup>	micrograms per cubic meter	CONUS	continental United States
64 ARS	64 <sup>th</sup> Air Refueling Squadron	CRAA	Columbus Regional Airport Authority
108 WG	108 <sup>th</sup> Wing	CWA	Clean Water Act
121 ARW	121 <sup>st</sup> Air Refueling Wing	CY	Calendar Year
157 ARW	157 <sup>th</sup> Air Refueling Wing	CZ	Clear Zone
171 ARW	171 <sup>st</sup> Air Refueling Wing	dB	decibel
190 ARW	190 <sup>th</sup> Air Refueling Wing	DERP	Defense Environmental Restoration Program
AAD	Average Annual Day	DLA	Defense Logistics Agency
AAQS	Ambient Air Quality Standards	DNL	Day-Night Average Sound Level
ACAA	Allegheny County Airport Authority	DoD	Department of Defense
ACM	asbestos-containing material	EIS	Environmental Impact Statement
ACS	American Community Survey	EISA	Energy Independence and Security Act
AFB	Air Force Base	EO	Executive Order
AFCEC	Air Force Civil Engineer Center	ERP	Environmental Restoration Program
AFI	Air Force Instruction	FAA	Federal Aviation Administration
AFMAN	Air Force Manual	FAR	Federal Aviation Regulations
AFOSH	Air Force Occupational Safety and Health	FEMA	Federal Emergency Management Agency
AFSEC	Air Force Safety Center	FHWA	Federal Highway Administration
AGE	Aerospace Ground Equipment	FICUN	Federal Interagency Committee on Urban Noise
AGL	above ground level	FL	Flight Level
AICUZ	Air Installation Compatible Use Zone	FPPA	Farmland Protection Policy Act
AMC	Air Mobility Command	FY	fiscal year
ANG	Air National Guard	FTU	Formal Training Unit
ANGS	Air National Guard Station	GHG	greenhouse gas
AOC	Area of Concern	GMV	Government Motor Vehicle
APZ	Accident Potential Zone	GWP	global warming potential
ARFF	Aircraft Rescue and Fire Fighting	HAP	Hazardous Air Pollutant
ARO	Air Refueling Operator	I-	Interstate
ASD	Average Sortie Duration	IAP	International Airport
ASN	Aviation Safety Network	IFR	Instrument Flight Rule
AST	aboveground storage tank	INM	Integrated Noise Model
AT/FP	Anti-Terrorism/Force Protection	JB MDL	Joint Base McGuire-Dix-Lakehurst
ATADS	Air Traffic Activity Data System	KIAS	knots indicated airspeed
ATCAA	Air Traffic Control Assigned Airspace	KS ANG	Kansas Air National Guard
BAI	Backup Aerospace Vehicle Inventory	LBP	lead-based paint
BASH	Bird/Wildlife Aircraft Strike Hazard	LEED	Leadership in Energy and Environmental Design
BOMARC	Boeing Michigan Aerospace Research Center	LID	Low Impact Development
C2	Command and Control	MBTA	Migratory Bird Treaty Act
C4	Command, Control, Communications, and Computers	MILCON	Military Construction
CAA	Clean Air Act	MOA	Military Operations Area
CAP	Central Accumulation Point	MOB	Main Operating Base
CEQ	Council on Environmental Quality	MOB 1	First Main Operating Base
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	MOB 2	Second Main Operating Base
CFR	Code of Federal Regulations	MSL	mean sea level
CH <sub>4</sub>	methane	MTAA	Metropolitan Topeka Air Authority
CO	carbon monoxide	N <sub>2</sub> O	nitrous oxide

NAAQS	National Ambient Air Quality Standards	PM <sub>10</sub>	particulate matter less than or equal to 10 microns in diameter
NDAA	National Defense Authorization Act	POL	petroleum, oil, and lubricant
NEPA	National Environmental Policy Act	POV	privately owned vehicle
NGB	National Guard Bureau	ppm	parts per million
NGB/A7AN	National Guard Bureau, Asset Management Division, Natural Infrastructure Management Branch	PSD	Prevention of Significant Deterioration
NH ANG	New Hampshire Air National Guard	PUD	Planned Unit Development
NHPA	National Historic Preservation Act	QD	quantity-distance
NIOSH	National Institute for Occupational Safety and Health	RCRA	Resource Conservation and Recovery Act
NIPTS	Noise-Induced Permanent Threshold Shift	ROD	Record of Decision
NJ ANG	New Jersey Air National Guard	ROI	Region of Influence
nm	nautical mile	RPZ	Runway Protection Zone
NO <sub>2</sub>	nitrogen dioxide	SAP	satellite accumulation point
NOA	Notice of Availability	SEL	Sound Exposure Level
NOI	Notice of Intent	SF	square foot/feet
NO <sub>x</sub>	oxides of nitrogen	SHPO	State Historic Preservation Office(r)
NPDES	National Pollutant Discharge Elimination System	SIP	State Implementation Plan
NRCS	Natural Resources Conservation Service	SO <sub>2</sub>	sulfur dioxide
NRHP	National Register of Historic Places	SR	State Route
NVIS	Night Vision Imaging System	SUA	Special Use Airspace
O <sub>3</sub>	ozone	SWPPP	Stormwater Pollution Prevention Plan
OH ANG	Ohio Air National Guard	TFI	Total Force Integration
OSHA	Occupational Safety and Health Administration	tpy	tons per year
OWS	oil/water separator	TSCA	Toxic Substances Control Act
PA ANG	Pennsylvania Air National Guard	U.S.	United States
PAA	Primary Aerospace Vehicles Authorized	UFC	Unified Facilities Criteria
PADEP	Pennsylvania Department of Environmental Protection	USACE	United States Army Corps of Engineers
Pb	lead	USAF	United States Air Force
PCB	polychlorinated biphenyl	USC	United States Code
PDA	Pease Development Authority	USDA	United States Department of Agriculture
PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 microns in diameter	USEPA	United States Environmental Protection Agency
		USFWS	United States Fish and Wildlife Service
		USGS	United States Geological Survey
		UST	underground storage tank
		UTBNI	Up to But Not Including
		VFR	Visual Flight Rule
		VOC	volatile organic compound



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## **EXECUTIVE SUMMARY**

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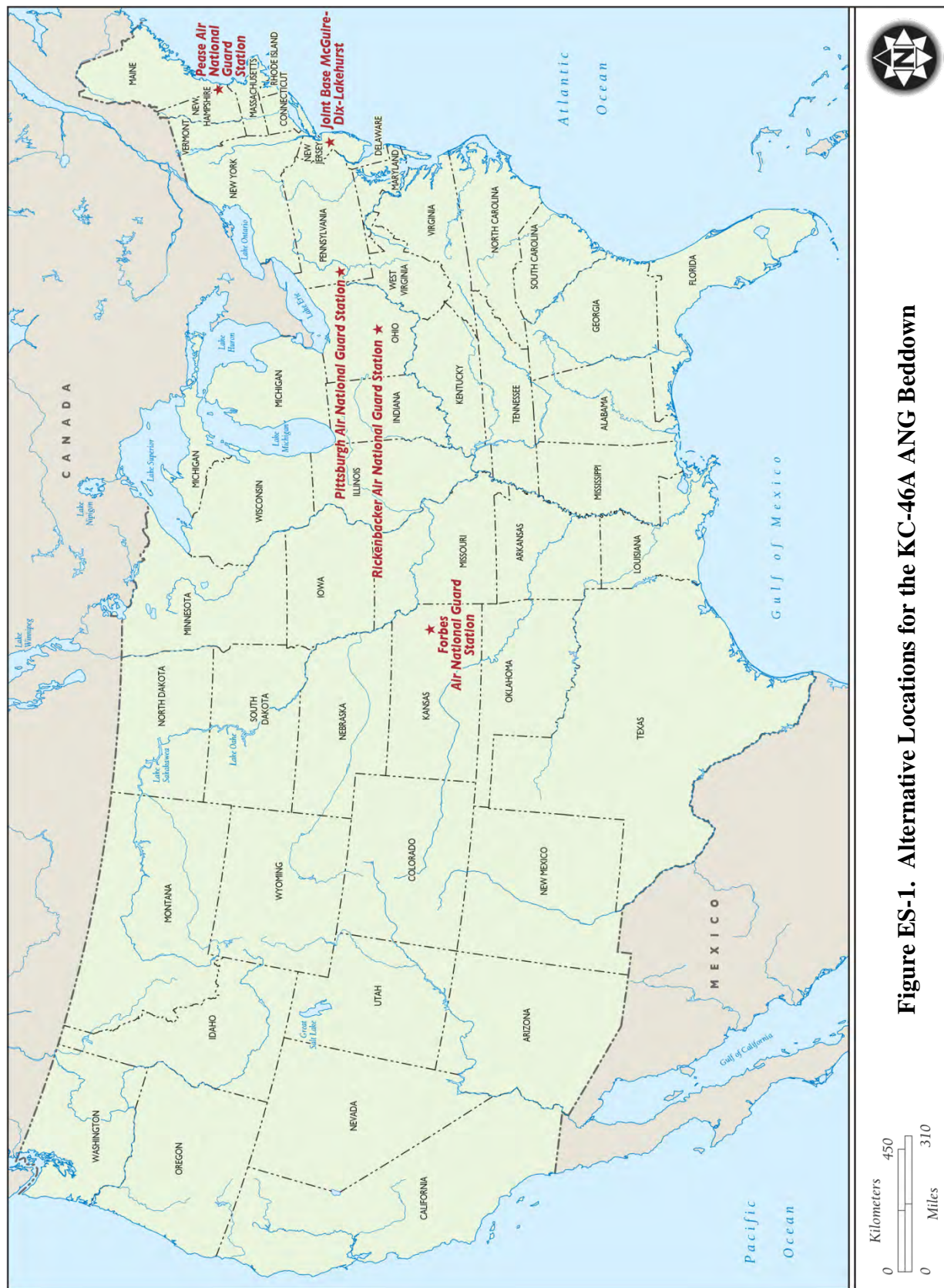
This Environmental Impact Statement (EIS) analyzes the potential environmental impacts associated with the beddown the KC-46A at the Second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit. The Secretary of the Air Force proposes to replace existing KC-135s with the KC-46A aircraft for MOB 2 at one of five alternative locations. The five alternative ANG locations (Figure ES-1) selected for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The official public scoping period for this proposal was initiated when the Notice of Intent (NOI) to prepare the EIS was published in the *Federal Register* on May 17, 2013 and ended on July 5, 2013. The Notice of Availability (NOA) for the Draft EIS was published in the *Federal Register* on February 7, which initiated a 45-day public comment period on the Draft EIS that ended on March 24, 2014. All comments received on the Draft EIS have been fully considered and addressed in the Final EIS, as appropriate. Comments received are reflected in Appendix B, Section 6, pages B6-223 to B6-387. Only substantive comments were responded to in the Government Responses to Comments, Appendix B, Section 6, pages B6-202 to B6-222.

### **PURPOSE AND NEED**

Air refueling is the backbone of the United States' (U.S.) ability to project global reach and combat power. Air refueling aircraft, also known as “tankers,” are a joint asset, serving our sister services and U.S. allies who rely on the range and flexibility of tankers to strengthen their contribution to the coalition fight. Without a robust air refueling capability, U.S. forces would be limited in their ability to provide global reach. The original mission of the current United States Air Force (USAF) air refueling aircraft, the KC-135 Stratotanker, was primarily to refuel strategic bomber aircraft while in flight, which enhances the ability of aircraft to provide sustained mission capability without landing to refuel. Through the course of the KC-135's service life, structural and functional modifications have added capabilities to select aircraft. The result is a fleet of aircraft with multiple configurations and crews that may not be trained to accomplish every mission for which the aircraft is capable. This lack of standardized equipment and training throughout the fleet limits the ability for KC-135s to support, on a large scale, multi-role missions or exploit new tactics and procedures. The following are examples of capabilities that the current KC-135 fleet lacks:



**Figure ES-1. Alternative Locations for the KC-46A ANG Beddown**

- Multi-Point Refueling. Simultaneous refueling of two probe-equipped receiver aircraft from the same tanker is limited to 20 sets of wing-mounted refueling pods installed on the aircraft for the fleet of tankers.
- Boom/Probe and Drogue Refueling. With the exception of the refueling pod equipped aircraft, the KC-135 fleet does not have capability to perform boom and probe/drogue refueling on the same sortie<sup>1</sup>.
- Receiver capabilities. Only eight KC-135s have air refueling receptacles, which means that only eight of the KC-135 aircraft in the fleet can receive fuel in flight. This restricts force extension and limits persistence over the battlefield. It also results in inefficient use of valuable, but limited air refueling assets and limits flexibility within the maintenance schedule.
- Night Vision Imaging System (NVIS). The KC-135 fleet currently lacks a standard NVIS for tanker cockpits and boom operator positions. Additionally, exterior lighting is not currently NVIS-compatible, which prohibits air refueling in tactical NVIS (low vision) conditions. This limits the ability to perform covert air refueling operations at night, and degrades effectiveness of special operations support.
- Command, Control, Communications, and Computers (C4). KC-135s lack robust connectivity to command and control agencies. No secure tactical datalink exists and these aircraft have limited C4 connectivity to other combat, combat support, and mobility aircraft.
- Defensive Protection. KC-135s currently do not have any aircraft defensive systems.

The purpose of this action is to ensure that the National Guard Bureau (NGB) will have air refueling support for both conventional global strike and nuclear deterrence operations into the future. The purpose of the KC-46A is to support air superiority through air refueling of fighter, bomber, attack, special operations, Command and Control, Intelligence, Surveillance and Reconnaissance, and transport aircraft; and to support employment of combat units deploying to areas of operations. Finally, the KC-46A will also support the Command and Control core function as a communications “gateway” when equipped with a roll-on gateway system to provide connectivity between tactical network partners in theater.

The NGB requires a refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The KC-46A is the USAF’s newest air refueling aircraft that meets this need. NGB requires a location to beddown the KC-46A aircraft in support of MOB 2. The base would support the beddown and

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<sup>1</sup> Probe and drogue refueling employs a flexible hose that trails from the tanker aircraft. The drogue is a fitting resembling a windsock, and is attached with a valve to a flexible hose.

training of crewmembers and personnel in the operation and maintenance of the KC-46A aircraft in an appropriate geographic location that can provide sufficient airfield, facilities, infrastructure, and airspace to support the KC-46A training and operations.

#### **NARROWING PROCESS FOR ALTERNATIVE BASES**

As previously described, the NGB is programmed to beddown one squadron of 12 Primary Aerospace Vehicles Authorized (PAA) KC-46A aircraft at one of five alternative locations. Identification and analysis of alternatives is one of the core elements of the environmental process under the National Environmental Policy Act (NEPA) and the USAF's implementing regulations. The NGB may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 Code of Federal Regulations [CFR] 989.8(c)). Based on extensive analysis by the USAF operations community, a siting study was conducted to determine the specific requirements for beddown of the KC-46A aircraft and to identify potential military installations where this beddown could occur. Following this study, the Secretary of the Air Force and the Chief of Staff of the Air Force approved selection criteria for the KC-46A beddown.

The approved criteria were used to screen the enterprise of 83 candidate installations to identify those installations' capacity to successfully support the MOB 2 mission. The objective criteria included mission, capacity, environmental considerations, and cost.

The Secretary of the Air Force considered the objective screening results as well as qualitative operational factors in determining the alternative installations for the KC-46A MOB 2 mission. These military judgment factors included:

- Plans and Guidance
- Global and Regional Coverage
- Combatant Commander Support
- Total Force
- Beddown Timing
- Force Structure
- Training Requirements and Efficiencies
- Logistic Supportability
- Resources/Budgeting

The Strategic Basing Process described above resulted in the identification of five alternative bases for consideration.

- Forbes ANGS, Kansas
- JB MDL, New Jersey
- Pease ANGS, New Hampshire
- Pittsburgh ANGS, Pennsylvania
- Rickenbacker ANGS, Ohio

## **PROPOSED ACTION AND ALTERNATIVES**

### **Overview of the Proposed Action**

The USAF has a requirement to provide refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The NGB proposes to beddown one squadron of 12 KC-46A aircraft at one of five alternative locations: Forbes ANGS, Kansas; JB MDL, New Jersey; Pease ANGS, New Hampshire; Pittsburgh ANGS, Pennsylvania; or Rickenbacker ANGS, Ohio. Additionally, one active duty associate unit would be integrated with ANG personnel and equipment, enabling joint training and execution of missions using ANG-assigned aircraft. Furthermore, the NGB would implement construction projects associated with the aircraft beddown at the selected installation. Concurrent with the beddown of the KC-46A, the existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the USAF inventory.

As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action. The proposed beddown is estimated to begin in Fiscal Year (FY) 2018 for the NGB, and construction is estimated to begin FY 2015. Although proposed construction is necessary for the long-term viability of the beddown, aircraft operations with the KC-46A could begin prior to implementation of the construction. Table ES-1 summarizes the major components of each alternative.

**Table ES-1. Summary of Alternatives (Current/Proposed)**

	<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
Refueler Aircraft Type	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-135
Number of Refueler Aircraft (PAA)	12 / 12	8 / 12	8 / 12	16 / 12	18 / 12	Same as current
ARW Refueler Flying Hours	4,868 / 8,040	3,687 / 8,040	6,219 / 8,040	6,016 / 8,040	7,215 / 8,040	Same as current
Annual Sorties	1,478 / 2,010	1,112 / 2,010	1,382 / 2,010	1,569 / 2,010	2,014 / 2,010	Same as current
% Home-Station Operations	64% / 64%	75% / 75%	44% / 44%	59% / 59%	64% / 64%	Same as current
Home-Station Sorties	946 / 1,286	834 / 1,508	614 / 884	926 / 1,186	1,289 / 1,286	Same as current
Annual Airfield Operations Home-Station -- ANG	10,452 / 14,562	8,340 / 17,608	6,140 / 8,840	6,943 / 9,226	6,445 / 6,857	Same as current
Total Actual Airfield Operations (including ANG) based on 2012 FAA/Tower reports	24,630 / 28,740	62,686 / 71,875	37,410 / 40,110	139,217 / 141,500	39,436 / 39,848	Same as current
Total FAR Part 150 (Baseline 2006/2007) Approved Operations (including ANG)	N/A	N/A	N/A	321,436 <sup>1</sup> / 317,602	67,160 <sup>2</sup> / 60,877	Same as current
Construction -- new	Hangar modifications; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; new simulator building; ramp/taxiway modifications	Hangar modifications; building additions; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/ taxiway modifications	None
Construction -- renovations	Internal building renovations	Internal hangar renovations	Internal building renovations	Internal hangar renovations	Internal hangar renovations	None
Proposed Personnel Change (ANG and active duty)	+194	+287	+171	+59	+197	0

Notes: 1. 2006 Part 150 Study data

2. 2007 Part 150 Study data

ANGS = Air National Guard Station; JB MDL = Joint Base McGuire-Dix-Lakehurst; PAA = Primary Aerospace Vehicles Authorized; ARW = Air Refueling Wing; ANG = Air National Guard; FAR = Federal Aviation Regulations

## **Requirements of the Proposed Action**

### **Aircraft Beddown/Transition**

The KC-46A is planned to eventually replace existing USAF KC-135s. The NGB proposes to begin this process by replacing the aircraft at the selected location with 12 KC-46A operational aircraft (regardless of how many aircraft are currently at the alternative location). It is estimated that the 12 KC-46A aircraft would be beddown at the selected location beginning in FY 2018. The existing KC-135 aircraft at the selected location would either be relocated to another installation and/or would be retired out of the USAF inventory. The relocation/retirement actions would be evaluated under NEPA, as appropriate.

### **Facility and Infrastructure Requirements**

While basing the KC-46A would require certain facilities and infrastructure to support necessary training and operational requirements, utilizing existing infrastructure to the maximum extent feasible comprises a fundamental basis of the Proposed Action. Where existing facilities and infrastructure cannot meet the needs of the Proposed Action, the NGB would implement construction of necessary new and/or renovated infrastructure and facilities at the selected alternative installation. The type of construction needed would vary by installation (Table ES-1).

### **Personnel Changes**

The KC-46A would provide substantial expanded capabilities with only minor overall changes in military personnel; however, the mission would require basing sufficient and appropriate personnel to operate and maintain the Wing and to provide necessary support services. In addition, there would be an active duty associate unit based with the selected MOB 2 alternative installation. The change in number of personnel would vary by installation (Table ES-1).

### **KC-46A Operations**

Under the Proposed Action, the 12 PAA KC-46A aircraft would fly 670 hours per aircraft, per year, for a total of 8,040 hours annually. Because this is a new aircraft flying with a combination of ANG and associate active duty personnel, a uniform distribution of flying hours was assumed for each alternative. This is considered a conservative estimate and any deviation from this would likely be fewer hours flown. Thus, with an estimated average sortie duration (ASD) of 4.0 hours, the KC-46A aircraft would fly 2,010 sorties annually. The 2,010 annual sorties would be flown at a combination of the unit's home-station as well as off-station airfields, where they are able to train in a different setting than their home-station. Each of the five alternative installations currently fly a different number of airfield operations per sortie, as well as a different percent of home-station/off-station operations. In developing the analysis for each



installation, the installations' unique ratio of airfield operations was assumed to remain the same into the future, as were the percent of home-station/off-station operations. This resulted in a range of home-station airfield operations across the five action alternatives. Further, it is recognized that there is a recent trend toward an increasing use of flight simulators, which can reduce the number of hours flown. However, without a clear definition in the use of the simulator as opposed to actual airfield operations, the full 8,040 flying hour program has been analyzed for each action alternative. No changes are proposed to airfield departure/arrival patterns and tracks, flight profiles, and use of runways from those that are currently performed with the KC-135 at each MOB 2 location. Any existing noise abatement procedures would continue to be followed.

Under the Proposed Action, there would be some increases in the frequency of use and number of operations conducted in the airspace currently used by the KC-135, depending on the increase of sorties over the current baseline at each alternative installation. The KC-46A would use the same airspace currently used by the selected installation, with no new airspace required to support the mission. The types of airspace used would consist of published air refueling tracks, Anchors, Warning Areas, and Military Operations Areas (MOAs). These are found in the Department of Defense (DoD) AP/1B, Flight Information Publication, and Area Planning documents. All air refueling is accomplished above 10,000 feet mean sea level (MSL), although some MOAs are approved for lower altitude flight for training not involving air refueling. While a large percentage of air refueling occurs close to the home-station airfield, KC-135 aircraft refuel in other refueling tracks and Warning Areas located throughout the U.S. Under the Proposed Action, the KC-46A would use the airspace in the same manner as the KC-135 aircraft. It is anticipated that the KC-46A would operate in existing airspace and conduct flight operations similar to the existing KC-135 aircraft; therefore, detailed analysis of airspace has not been conducted in this EIS.

### **Identification of the Preferred Alternative**

The USAF has identified Pease ANG as the preferred alternative for the MOB 2 KC-46A beddown. The USAF selected Pease ANG based on an operational analysis, results of site surveys, and military judgment factors.

### **NO ACTION ALTERNATIVE**

The Council on Environmental Quality (CEQ) regulation 40 CFR § 1502.14(d) specifically requires analysis of the "No Action" alternative in all NEPA documents. Under the No Action Alternative, the proposed aircraft beddown would not occur, and the NGB would not implement the components described above under the five Action Alternatives. There would be no change in based aircraft; use of the airfield at the proposed locations; or use of Special Use Airspace

(SUA), construction, or personnel assigned to the KC-46A aircraft squadron. Under the No Action Alternative, the NGB would continue to conduct their current mission using the existing KC-135 aircraft with multiple configurations and crews that are not trained to accomplish every mission. This lack of standardized equipment and training throughout the fleet would continue to negatively impact the ability for KC-135 aircrews to support, on a large scale, multi-role missions or exploit new tactics and procedures. The continued use of the KC-135 aircraft would not meet the identified needs of the NGB or the USAF; however, this alternative is carried forward for analysis in this EIS per CEQ regulations, and as a baseline from which to compare the potential impacts of the Proposed Action and alternatives.

## **ENVIRONMENTAL CONSEQUENCES**

NEPA requires focused analysis on environmental resources and impact topics potentially affected by the Proposed Action or its alternatives. Based on the potential for the Proposed Action to affect the environment at and surrounding the five alternative locations, as well as public and agency concerns, several specific environmental resources were evaluated in detail in this EIS. The potential consequences of each alternative on these resources were evaluated and are summarized in Table ES-2.

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Noise</b>					
<p>Airfield operations would increase by 4,110 (39 percent increase in 190 ARW operations, 17 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 9,268 (111 percent increase in 108 WG operations, 15 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 2,700 (44 percent increase in 157 ARW operations, 7 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 3,834 (29 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2006]; and a 2 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 6,283 (48 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2007]; and a 1 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. The noise environment at each of the five alternative airfields would continue to be managed through their existing AICUZ or FAR Part 150 airfield compatibility programs. There would be no additional Noise impacts at any of the alternative installations under the No Action Alternative.</p>

Table ES-2. Summary of Impacts

Forbes ANG	JB MDL	Pease ANG	Pittsburgh ANG	Rickenbacker ANG	No Action Alternative
<b>Air Quality</b>					
Forbes ANG is located in an attainment area for all criteria pollutants. While there would be increases in operational criteria pollutant emissions, they would be below the PSD threshold, and would not be significant. Impacts from construction emissions and operational HAP emissions would be negligible.	The 108 WG installation is in a nonattainment area for O <sub>3</sub> (marginal nonattainment) and maintenance area for PM <sub>2.5</sub> and CO, and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO <sub>x</sub> , which would be above the <i>de minimis</i> threshold of 100 tpy. A conformity determination will be prepared. Impacts from construction emissions and operational HAP emissions are negligible.	The Pease ANG installation is in a maintenance area for O <sub>3</sub> , and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Pittsburgh ANG is located within a non-attainment area for PM <sub>2.5</sub> , a moderate nonattainment area for the 1997 8-hour O <sub>3</sub> standard, and is classified as a marginal nonattainment area for the 2008 8-hour O <sub>3</sub> standard, according to 40 CFR 81.339. The Pittsburgh ANG is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Rickenbacker ANG is located in a nonattainment area for the O <sub>3</sub> and PM <sub>2.5</sub> NAAQS. While there are increases in operational criteria pollutant emissions, they are below the PSD/ <i>de minimis</i> thresholds for all pollutants and are not significant. Impacts from construction emissions and operational HAP emissions are negligible.	Air Quality at each alternative airfield would remain as it currently is. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. Emissions at each of the alternative installations would continue to be in compliance with their respective SIPs. There would be no additional impacts to Air Quality at each alternative installation under the No Action Alternative.

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Safety</b>					
There would be a 39 percent increase in actual 190 ARW airfield operations (17 percent increase in total airfield operations) at Forbes Field Airport with commensurate increase in mishap and BASH potential.	There would be a 111 percent increase in actual 108 WG airfield operations (15 percent increase in total airfield operations) at JB MDL with a commensurate increase in mishap and BASH potential.	There would be a 44 percent increase in actual 157 ARW airfield operations (7 percent increase in total airfield operations) at Portsmouth IAP with a commensurate increase in mishap and BASH potential.	There would be a 33 percent increase in actual 2012 171 ARW airfield operations (2 percent increase in total airfield operations) at Pittsburgh IAP with a commensurate increase in mishap and BASH potential.	There would be a 6 percent increase over the actual 2012 121 ARW airfield operations (1 percent increase in total airfield operations) at Rickenbacker IAP with a commensurate increase in mishap and BASH potential.	Both ground and flight safety at each alternative airfield would remain as they currently are. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Safety under the No Action Alternative.
Construction activities would involve no unusual or extraordinary techniques. During construction, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.					
<b>Soils and Water</b>					
There would be approximately 5.9 acres of temporary soil disturbance and no new impervious surface as a result of the proposed construction.	There would be approximately 4.7 acres of temporary soil disturbance and 2.4 acres of new impervious surface as a result of the proposed construction.	There would be approximately 3.0 acres of temporary soil disturbance and 0.5 acres of new impervious surface as a result of the proposed construction.	There would be approximately 4.3 acres of temporary soil disturbance and 2.0 acres of new impervious surface as a result of the proposed construction.	There would be approximately 8.5 acres of temporary soil disturbance and 0.3 acres of new impervious surface as a result of the proposed construction.	Soils and Water Resources at each alternative airfield would remain as they currently are. There would be no additional impacts to Soils and Water Resources as a result of the No Action alternative.
To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.		To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore, the Farmland Protection Policy Act does not apply to this alternative. As a result, impacts to soil and water resources would be negligible.			

Table ES-2. Summary of Impacts

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Biological Resources</b>					
<p>No impacts to vegetation and wetlands.</p> <p>Impacts to wildlife species from operational noise would be imperceptibly beneficial due to the slight decrease in noise.</p> <p>39 percent increase in 190 ARW (17 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to wildlife due to construction would be negligible.</p> <p>No special status species or critical habitat is known to occur on Forbes Field Airport; therefore, there would be no impacts to these species.</p>	<p>Impacts to vegetation would be minor.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>111 percent increase in 108 WG (15 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed species or critical habitat is known to occur on McGuire Field.</p> <p>Six state listed species are known to occur on McGuire Field. There would be no impacts to federally listed and impacts to state listed species would be minor.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>44 percent increase in 157 ARW (7 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Portsmouth IAP; therefore, there would be no impacts to federally listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No significant impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 33 percent increase in 171 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed or critical habitat is known to occur on Pittsburgh IAP; therefore, there would be no impacts to federally listed species.</p> <p>There would be no impacts to state listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 6 percent increase in 121 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Rickenbacker IAP; therefore, there would be no impacts to federally listed species.</p>	<p>There would be no change to Biological Resources under this alternative.</p> <p>There would be no additional impacts to Biological Resources as a result of the No Action Alternative.</p>

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Cultural Resources</b>					
Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. Minor interior modifications to Building 679 would not affect the NRHP-eligibility of the building. The Kansas SHPO has concurred with these findings. The installation has been intensively surveyed and no known traditional resources are known to occur. Two responses have been received from the Kaw Nation and the Wichita and Affiliated Tribes stating that they have no objection to the Proposed Action. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts	Construction activities associated with this alternative would be primarily limited to the developed areas of the installation in the areas of the aircraft hangars and airfield pavements. A small amount of construction (0.15 acre) would occur in forested area near this developed area. Based on previous archaeological surveys at McGuire Field, the area of proposed construction does not contain any known NRHP-eligible sites and is considered to have a low potential for containing buried materials. The New Jersey SHPO has concurred with these findings. No traditional resources have been identified. Responses from the Delaware Tribe of Indians and the Delaware Nation stated that their review indicated no religious or culturally significant sites in the area. SHPO consultation for this EIS has provided concurrence that no historic properties would be	Based on previous archaeological surveys on the installation, the area of proposed construction does not contain any known NRHP-eligible sites or traditional resources. Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The New Hampshire SHPO has concurred with these findings. The Penobscot Indian Nation is the only federally-recognized tribal entity affiliated with Pease ANG, and has responded stating that they have no issues with the Proposed Action. No impacts to cultural impacts would be expected to occur.	The installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the Pittsburgh ANG. Construction activities associated with this alternative are limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements and all impacts would be negligible. Correspondence has been received from all tribes consulted including the Seneca Nation of Indians, the Cayuga Nation of New York, the Tonowanda Band of Seneca, Tuscarora Nation of New York, and the Onondaga Nation of New York stating that they have no objection to the Proposed Action	Construction activities at Rickenbacker ANG would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The installation has been intensively surveyed for cultural resources and no traditional cultural resources are known to exist in the area. The one significant archaeological resource that is located within the installation is not within the proposed construction areas and would not be impacted. Two NRHP-eligible hangars (883 and 885) could be adversely impacted by construction under this alternative. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, additional consultation would be conducted to minimize and mitigate	Under the No Action Alternative, Cultural Resources at each alternative installation would remain as they currently are. None of the proposed facility construction/renovations would occur at any of the installations, and thus, there would be no potential impacts to facilities that are eligible for listing on the NRHP. There would be no surface disturbance from construction activities, and thus no potential to impact unknown archaeological resources. There would be no additional impacts to Cultural Resources as a result of the No Action Alternative.

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Forbes ANG is now complete.	affected under the proposed action.			adverse effects to these buildings. Correspondence has been received from the Peoria Tribe of Indians, the Pokagon Band of Potawatomi Indians, the Turtle Mountain Band of Chippewa Indians of North Dakota, the Delaware Nation, and the Shawnee Tribe who indicated that they had no objection to the proposed project. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Rickenbacker ANG is now complete.	
<b>Land Use</b>					
Total annual airfield operations would increase by 4,110 (17 percent).	Total annual airfield operations would increase by 9,268 (15 percent).	Total annual airfield operations would increase by 2,700 (44 percent).	Airfield operations would decrease by 3,834 (29 percent decrease) from the currently	The number of airfield operations would decrease by 6,283 (48 percent decrease) from the	Land Use at each alternative airfield would remain as it currently is. Each of the five installations would retain the



**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres (55 acres off airport-controlled property). Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would be compatible with current land use and zoning designations and would result in imperceptibly beneficial impacts by reducing the off-airport areas currently exposed to a DNL between 65 dB and 70 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour off DoD-controlled property would increase by 419 acres. An additional 8 acres of residential use areas would be exposed to greater than 65 dB DNL.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in minor adverse impacts due to an increase in off-airport areas (including residential areas) exposed to a DNL between 65 dB and 75 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in negligible impacts due to an increase in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>published FAR Part 150 Noise Compatibility Program (2006), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>currently published FAR Part 150 Noise Compatibility Program (2007), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-controlled property that lie within the 65 dB contour.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Land Use under the No Action Alternative at any of the alternative locations.</p>

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Infrastructure and Transportation</b>					
<p>Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increased demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.</p>					<p>Infrastructure and Transportation at each alternative installation would remain as they currently are. There would be no change to the based personnel at any of the alternative locations. There would be no increase in use of various utilities or roadway systems under this alternative. There would be no additional impacts under the No Action Alternative.</p>

Table ES-2. Summary of Impacts

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Hazardous Materials and Waste</b>					
There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	One of the ERP Sites, SS-39, overlaps with a portion of the existing fuel hydrants that would be capped, as well as the proposed addition to Hangar 3336. Remedial investigation is on-going with this site. It is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations. If contaminated media were encountered during the course of site preparation or site development, work would cease until 108 WG Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 171 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media are encountered during the course of site preparation or site development, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	<p>Hazardous Materials and Wastes at each alternative installation would remain as described in the baseline section for each alternative location. The benefit of eliminating ozone depleting substances with the KC-46A would not be realized.</p> <p>The throughput and management of hazardous materials and wastes would not change from baseline conditions.</p> <p>There would be no additional impacts to Hazardous Materials and Wastes under the No Action Alternative.</p>

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
There would not be an increased risk of hazardous waste releases or exposure from this alternative. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations.					
<b>Socioeconomics</b>					
Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.					<p>Socioeconomics at each alternative installation would remain as described in the baseline section for each alternative. The minor economic benefit of additional based personnel and construction activity would not occur at any of the alternative installations.</p> <p>There would be no additional impacts to Socioeconomics under the No Action Alternative.</p>

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Environmental Justice and the Protection of Children</b>					
<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Forbes Field Airport exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>The percentage of minority and low-income persons affected would remain approximately the same as baseline.</p> <p>There would be no disproportionate impacts to minority or low-income populations. The child development center that is currently under the 65 dB contour would be located under the 70 dB contour. There would be no special health or safety risks to children.</p>	<p>There are no residential areas within the noise contours. No additional schools would be located within the vicinity of Portsmouth IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Pittsburgh IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>Under the No Action Alternative, Environmental Justice and the Protection of Children at each alternative installation would remain as described in the baseline section for each alternative. There were no disproportionate impacts to low-income, minority, or children identified under any of the action alternatives. There would be no additional impacts as a result of the No Action Alternative.</p>

*Notes:* 190 ARW = 190<sup>th</sup> Air Refueling Wing; dB = decibel; DNL = Day-Night Average Sound Level; DoD = Department of Defense; 108 WG = 108<sup>th</sup> Wing; 157 ARW = 157<sup>th</sup> Air Refueling Wing; FAR = Federal Aviation Regulations; AICUZ = Air Installation Compatible Use Zone; ANG = Air National Guard Station; PSD = Prevention of Significant Deterioration; HAP = hazardous air pollutant; O<sub>3</sub> = ozone; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; tpy = tons per year; CFR = Code of Federal Regulations; SIP = State Implementation Plan; BASH = Bird/Wildlife Aircraft Strike Hazard; JB MDL = Joint Base McGuire-Dix-Lakehurst; IAP = International Airport; 171 ARW = 171<sup>st</sup> Air Refueling Wing; 121 ARW = 121<sup>st</sup> Air Refueling Wing; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office; ERP = Environmental Restoration Program; LBP = lead-based paint; ACM = asbestos-containing material; USAF = United States Air Force

## CHAPTER 1

# PURPOSE AND NEED FOR THE PROPOSED ACTION

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### 1.1 INTRODUCTION

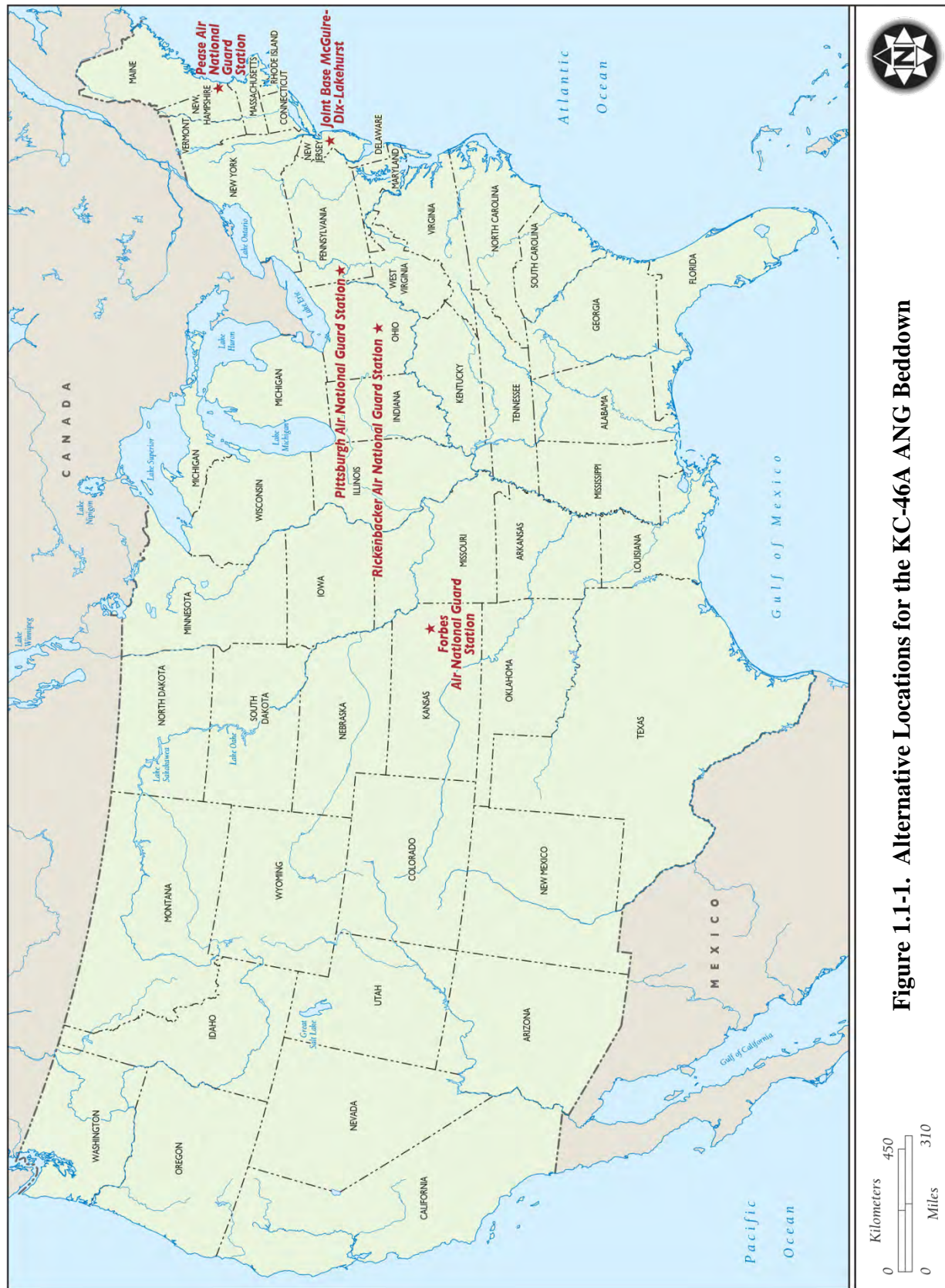
The United States Air Force (USAF) plans to replace existing KC-135s with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF plans to identify locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the Second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit. The FTU alternative installations are Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include both Altus and McConnell AFBs, in addition to Fairchild AFB, Washington; and Grand Forks AFB, North Dakota. This particular document will analyze the potential environmental impacts associated with the MOB 2 beddown only, and will further reference the proposed FTU and MOB 1 beddowns only as necessary in the context of the proposed MOB 2 beddown. A separate Environmental Impact Statement (EIS) is currently being prepared for the FTU and MOB 1 beddowns.

The Secretary of the Air Force proposes to beddown KC-46A aircraft for MOB 2 at one of five alternative locations. The goal of KC-46A basing and fielding is to continue to provide optimum Combatant Commander support and to efficiently meet regional and global receiver demands while replacing existing KC-135s. This action would involve the beddown of one KC-46A squadron consisting of 12 Primary Aerospace Vehicles Authorized (PAA), and establishing a KC-46A Main Operating Base (MOB). Five alternative ANG locations (Figure 1.1-1) were selected for this beddown based on criteria identified in Section 2.2:



- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.





**Figure 1.1-1. Alternative Locations for the KC-46A ANG Beddown**

Concurrent with the beddown of the 12 KC-46A, 12 existing KC-135 aircraft would be retired out of the USAF fleet. The existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the USAF inventory, depending on the age and maintenance status of each aircraft. Separate documentation would be prepared if the KC-135 aircraft are relocated to another installation. The beddown of the MOB 2 KC-46A would follow the Total Force Integration (TFI) concept that was enacted into law through the passage of the 2008 National Defense Authorization Act (NDAA), pairing two USAF component units (host and associate) together to operate as one. TFI supports USAF transformation by developing, promoting, and implementing new and creative organizational constructs and by advocating changes in personnel policy that enhance the integration of active, reserve, and civilian work forces. In support of TFI, an active duty associate unit would be integrated with ANG personnel and equipment under any of the action alternatives, enabling joint training and execution of missions using ANG-assigned aircraft. The ANG host unit would be assigned principal responsibility of the physical resources for mission accomplishment (aircraft, equipment, facilities) and the active duty associate unit would share those resources.

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force Instruction (AFI) 32-7061 as promulgated at 32 CFR Part 989 *et seq.*, *Environmental Impact Analysis Process*, the National Guard Bureau (NGB) has prepared this EIS, that considers the potential consequences to the human and natural environment that may result from implementation of this action.

## **1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION**

### **1.2.1 Purpose of Action**

Air refueling is the backbone of the United States' (U.S.) ability to project global reach and combat power. Air refueling aircraft, also known as "tankers," are a joint asset, serving our sister services and U.S. allies who rely on the range and flexibility of tankers to strengthen their contribution to the coalition fight. Without a robust air refueling capability, U.S. forces would be limited in their ability to provide global reach. The original mission of the current USAF air refueling aircraft, the KC-135 Stratotanker, was primarily to refuel strategic bomber aircraft while in flight, which enhances the ability of aircraft to provide sustained mission capability without landing to refuel. Through the course of the KC-135's service life, structural and functional modifications have added capabilities to select aircraft. The result is a fleet of aircraft with multiple configurations and crews that may not be trained to accomplish every mission for which the aircraft is capable. This lack of standardized equipment and training throughout the fleet limits the ability for KC-135s to support, on a large scale, multi-role missions or exploit



new tactics and procedures. The following are examples of capabilities that the current KC-135 fleet lacks.

- **Multi-Point Refueling.** Simultaneous refueling of two probe-equipped receiver aircraft from the same tanker is limited to 20 sets of wing-mounted refueling pods installed on the aircraft for the fleet of tankers.
- **Boom/Probe and Drogue Refueling.** With the exception of the refueling pod equipped aircraft, the KC-135 fleet does not have capability to perform boom and probe/drogue refueling on the same sortie<sup>1</sup>.
- **Receiver capabilities.** Only eight KC-135s have air refueling receptacles, which means that only eight of the KC-135 aircraft in the fleet can receive fuel in flight. This restricts force extension and limits persistence over the battlefield. It also results in inefficient use of valuable, but limited air refueling assets and limits flexibility within the maintenance schedule.
- **Night Vision Imaging System (NVIS).** The KC-135 fleet currently lacks a standard NVIS for tanker cockpits and boom operator positions. Additionally, exterior lighting is not currently NVIS-compatible, which prohibits air refueling in tactical NVIS (low vision) conditions. This limits the ability to perform covert air refueling operations at night, and degrades effectiveness of special operations support.
- **Command, Control, Communications, and Computers (C4).** KC-135s lack robust connectivity to command and control agencies. No secure tactical datalink exists and these aircraft have limited C4 connectivity to other combat, combat support, and mobility aircraft.
- **Defensive Protection.** KC-135s currently are not normally equipped with aircraft defensive systems, which limits aircraft from operating in anything other than a low-threat environment.

The purpose of this action is to ensure that the NGB will have air refueling support for both conventional global strike and nuclear deterrence operations into the future. The purpose of the KC-46A is to support air superiority through air refueling of fighter, bomber, attack, special operations, Command and Control, Intelligence, Surveillance and Reconnaissance, and transport aircraft; and to support employment of combat units deploying to areas of operations. Finally, the KC-46A will also support the Command and Control (C2) core function as a communications “gateway” when equipped with a roll-on gateway system to provide connectivity between tactical network partners in theater.

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<sup>1</sup> Probe and drogue refueling employs a flexible hose that trails from the tanker aircraft. The drogue is a fitting resembling a windsock, and is attached with a valve to a flexible hose.

## **1.2.2 Need for Action**

In support of the USAF worldwide operations and as part of the TFI, the NGB requires a refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The KC-46A is the USAF's newest air refueling aircraft that meets this need. NGB requires a location to beddown the KC-46A aircraft in support of MOB 2. The base will support the beddown and training of crewmembers and personnel in the operation and maintenance of the KC-46A aircraft in an appropriate geographic location that can provide sufficient airfield, facilities, infrastructure, and airspace to support the KC-46A training and operations.

## **1.3 BACKGROUND OF THE KC-46A**

### **1.3.1 Aircraft Characteristics**

This section compares the aircraft characteristics of the KC-46A and the existing KC-135. Some key specifications of the KC-135 and the KC-46A are compared in Table 1.3-1

**Table 1.3-1. Comparison of KC-135 and KC-46A**

<i>Specification</i>	<i>KC-135</i>	<i>KC-46A</i>
Length	136 feet, 3 inches	165 feet, 6 inches
Height	41 feet, 8 inches	52 feet, 10 inches
Wingspan	130 feet, 10 inches	156 feet, 1 inch
Power Plant	4 F108 CF-100	2 Pratt Whitney 4062
Takeoff Thrust	21,634 pounds per engine	62,000 pounds per engine
Speed	530 miles per hour (mph) at 30,000 feet	530 mph at 30,000 feet
Ceiling	50,000 feet	40,100 feet
Maximum Take-off Weight	322,500 pounds	415,000 pounds
Maximum Fuel Capacity	200,000 pounds	212,000 pounds
Pallets/Palletized Cargo Weight Capacity	6/36,000 pounds	18/65,000 pounds
Crew	3 crewmembers	3 crewmembers
Receiver Fuel Transfer	Very limited	Yes
Fuel Jettison	Yes	Yes
Night Vision Imaging System	No	Yes
Multi-point Refueling	Very limited	Yes
C2 Network	No	Yes
Defensive Protection	Very limited	Yes
Aeromedical Evacuation	Limited	Yes

### 1.3.2 Aircraft Characteristics of the KC-135

The KC-135 Stratotanker was developed in 1954 as the USAF's first jet-powered refueling tanker to replace the KC-97 Stratotanker and is derived from a commercial Boeing 367-80 commercial passenger plane. Between 1956 and 1966, 820 KC-135 aircraft of many different variations were built. Over the last 50 years, the KC-135 fleet has undergone substantial modifications to add capability. The KC-135 was originally developed to refuel strategic bombers. It was used in the Vietnam War and in all conflicts up to and



KC-135

including Operation Enduring Freedom in Afghanistan. For this EIS, all KC-135 models, including the current R model, are referred to as KC-135. Originally, all KC-135s were equipped with four Pratt & Whitney J-57-P-59W turbojet engines capable of producing approximately 13,000 pounds of thrust each. The current R models were upgraded to use the CFM56-2B1 (Military designation F108-CF-100) turbofan engines, which are capable of generating approximately 21,634 pounds of thrust per engine. The KC-135 has a maximum take-off weight of more than 322,500 pounds and the ability to off-load in excess of 150,000 pounds of fuel. In addition, the KC-135 is capable of transporting up to 36,000 pounds of palletized cargo and/or ambulatory patients during aeromedical evacuations. A cargo deck above the refueling system can hold a mixed load of passengers and cargo depending on the fuel storage configuration. The KC-135 pumps fuel through the flying boom, but some aircraft have been specially fitted with wing pods to allow a multi-point aerial refueling drogue system. As noted previously, the aircraft is limited by not possessing the capability for receiver fuel transfer, NVIS, defensive protection, and C2 capabilities.

### **1.3.3 Aircraft Characteristics of the KC-46A**

The KC-46A is derived from a commercial Boeing 767-200ER series aircraft and will be powered by two Pratt & Whitney 4062 engines with thrust reversers removed. Each engine will have the capability to provide approximately 62,000 pounds of thrust. The aircraft will be Federal Aviation Administration (FAA)-certified for worldwide operations. The KC-46A is a fully provisioned version of the Boeing 767-2C, FAA Amended Type Certified aircraft. It is required to meet the FAA Part 36 Stage 4 (most restrictive commercial aircraft noise level standard) and the International Congress of Aeronautical



Organizations, Committee of Environmental Protection 6 air contaminant emission limits. Three crewmembers, (pilot, copilot, and boom operator) will operate the aircraft with permanent seating for an additional 12 aircrew members. With new technology and a maximum fuel capacity expected to be over 212,000 pounds, the KC-46A is capable of accomplishing all current Air Mobility Command (AMC) refueling missions.

The KC-46A will be able to refuel any certified fixed-wing receiver-capable aircraft on any mission both day and night. The aircraft will be equipped with a modernized KC-10 refueling boom integrated with proven fly-by-wire control system and will have the ability to deliver fuel through a centerline hose and drogue system, which adds additional mission capability independent of the boom system.

This aircraft will be capable of accomplishing multi-role missions. By trading fuel for cargo, it will be able to carry up to 18 standard cargo pallets with a total palletized cargo payload of up to 65,000 pounds. With a far greater cargo area contour than the KC-135, KC-46A centerline pallet positions 1 through 8 can be built to carry full height (96-inch-high) cargo without the need for contouring, compared to KC-135 pallets, which are typically restricted to 65-inch-high cargo and must be contoured on the right-hand side starting at 50 inches off the top pallet surface. In normal operations, the KC-46A can be configured to carry 58 passengers and will be capable of providing urgent Aeromedical Evacuation, transporting up to 50 medical patients (24 litters/26 ambulatory).

Additional features include a flush-mounted air refueling receptacle, wing air refueling pods capability, boom air refueling camera and computer control systems, defensive and communication systems, NVIS/covert lighting, and military radio/navigation receivers. The boom operator will control the refueling systems from the crew compartment via the Air

Refueling Operating Station. A series of cameras mounted on the tanker's fuselage provide a 185-degree field of view under day and night lighting conditions. Imaging may be captured in three-dimensional or two-dimensional high-definition video. Fuel is automatically transferred within the aircraft to maintain center of gravity in all axes. The flow of fuel in, out, and within the aircraft can be manually or automatically controlled by the aircraft and can be manually controlled by the aircrew via control display units at the appropriate duty station.

In addition to fuel and cargo transport, each KC-46A aircraft will possess a secure airborne communications capability, which will provide beyond-the-line-of-sight messaging and line-of-sight tactical datalink multi-modal communications via secure networks. Hosting a suite of network-centric communications equipment, the KC-46A will function with most current C2 systems. The KC-46A will also support the C2 core function as a communications "gateway" when equipped with a roll-on gateway system to provide connectivity between tactical network partners in theater.

This aircraft will have self-defense and protection (both active and passive) capabilities and the necessary operational environment awareness to mitigate threats, but will not be operated in areas of high threats without requesting suppression of enemy air defenses and air support. This aircraft is capable of ferrying fuel into semi-austere airfields. By following Forward Area Refueling Point procedures, the aircraft can off-load fuel into fuel pits, bladders, trucks, or other aircraft, with or without the engines running, without the need for special equipment. The aircraft will be able to operate at certain night vision goggle and/or defensive system-required airfields with a minimum of 7,000 feet of paved runway available for take-off/landing.

The aircraft will be capable of operating in day-night and adverse weather conditions over vast distances to enable deployment, employment, sustainment, and redeployment of U.S., joint, allied, and coalition forces.

#### **1.3.4 Training Requirements**

KC-46A aircrews at the selected MOB 2 installation would complete operational sorties as part of their global reach missions and local training sorties to maintain proficiency in the aircraft. Training requirements for the KC-46A aircraft would be similar to those depicted for the KC-135 flight crews, which are detailed in AFI 11-2KC-135 Vol I (2012). An AFI 11-2KC-46 Vol. 1 is currently being developed to provide each flight crew member the minimum semi-annual and annual flying training requirements to qualify and maintain proficiency/currency (allowing for unsupervised flight) for the KC-46A and will provide the same minimum requirements for training.

Flight training, including air refueling and training in the flight simulator, is designed to provide basic and continuation aircrew training needs. A typical KC-46A proficiency training sortie would be very similar to a KC-135 training sortie and would include a departure from the installation, climb to altitude for air refueling training in appropriate airspace, return to the home installation for additional closed pattern training before landing for the sortie termination. Proficiency training sorties to fulfill the requirements of the AFI above typically depart from and return to the home installation on the same day. A global reach mission typically departs the home installation, returns on a later day, and accomplishes training as a by-product of the operational mission. Although some in-flight training and certification would occur, the majority of KC-46A system continuation training would be completed in simulators.

#### **1.4 THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS**

In accordance with NEPA of 1969 (42 USC 4321-4347), CEQ *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500-1508), and AFI 32-7061 as promulgated at 32 CFR Part 989 *et seq.*, *Environmental Impact Analysis Process*, the NGB and USAF have prepared this EIS, which considers the potential consequences to the human and natural environment that may result from implementation of these activities.

NEPA requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, and enhance the environment through well-informed federal decisions. The CEQ was established under NEPA to implement and oversee federal policy in this process. The CEQ subsequently issued the *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500-1508) (CEQ 1978).

The activities addressed within this document constitute a major federal action and therefore must be assessed in accordance with NEPA. To comply with NEPA, as well as other pertinent environmental requirements, the decision-making process for the Proposed Action includes the development of this EIS to address the environmental issues related to the proposed activities.

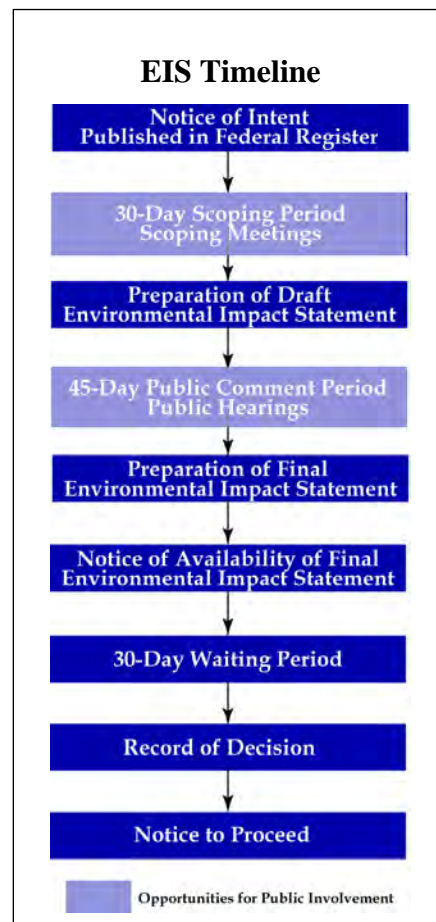
## 1.5 PUBLIC INVOLVEMENT/ENVIRONMENTAL COORDINATION

This EIS was prepared in compliance with all applicable local, state, and federal environmental regulations. An EIS is prepared as a tool for compiling information for a proposal and provides a full and fair discussion of environmental impacts to the natural and human environment. Reasonable alternatives to the Proposed Action, including the No Action Alternative are also evaluated in an EIS. The USAF has evaluated all reasonable alternatives to ensure that an informed decision is made after review and consideration of the potential environmental consequences.

Compliance with NEPA guidance for preparation of an EIS involves several critical steps summarized below.

1. *Announce that an EIS will be prepared.* For this EIS, a Notice of Intent (NOI) was published in the *Federal Register* on May 17, 2013.
2. *Conduct scoping.* This is the first major step in identifying the relevant issues to be analyzed in detail, and to eliminate issues that are not relevant. Scoping for this EIS occurred between May 17 and July 5, 2013. Throughout the scoping period, the NGB actively solicited public comments on the proposal. Information related to the proposal has been disseminated to the public through several avenues, including newspaper advertisements, public service announcements, a project website ([www.angkc46aeis.com](http://www.angkc46aeis.com)), and periodic fact sheets.

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning, the proponent must notify concerned federal, state, and local agencies and allow them sufficient time to evaluate potential environmental impacts of a Proposed Action. Comments from these agencies are subsequently incorporated into the environmental impact analysis process. Letters requesting input have been distributed to federal, state, and local agencies and are a part of the official project record. Appendix B



provides a list of relevant federal, state, and local agencies as well as sample notification letters, and comments received during the scoping period.

On November 27, 1999, the Department of Defense (DoD) promulgated its Annotated American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. This Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the respective services (DoD American Indian/Alaska Native Policy), as does DoD Instruction 4710.02, *Interaction with Federally Recognized Tribes* (September 14, 2006). In addition, coordination with federally recognized Native American tribes must occur in accordance with EO 13175, *Consultation and Coordination with Indian Tribal Governments*. Section 106 consultation and government-to-government consultation for this project continued throughout the duration of EIS preparation. NGB has initiated government-to-government consultation with federally-recognized tribes that are historically, culturally, and linguistically affiliated with the area in recognition of the tribes' sovereignty as nations. This consultation also provides additional information and is used for Section 106 consultation (see Appendix B for example letters and responses received from tribes).

Concerns and comments identified during the scoping process have been included in the analyses, as appropriate. Scoping meetings were held in New Egypt, New Jersey and Moon Township, Pennsylvania on June 4; Portsmouth, New Hampshire and Columbus, Ohio on June 6; and Topeka, Kansas on June 20, 2013. During the scoping meetings, the NGB presented details about the proposal, the NEPA process, and provided an opportunity for public and agency involvement. In addition to receiving verbal and written comments at the scoping meeting, the NGB has also accepted written comments from the public and agencies through U.S. mail, website, and email. The majority of the comments received during the official comment submittal period (17 May to 5 July 2013) were in support of the KC-46A beddown at each specific location. However, there were some concerns regarding noise impacts and aircraft emissions. To the extent possible, scoping comments have been used to shape the analysis and focus the issues in this EIS.

3. *Prepare a Draft EIS.* The Draft EIS is a comprehensive document for public and agency review. The Draft EIS describes the purpose and need of the Proposed Action and alternatives; presents the existing conditions in the region potentially affected; and provides analysis of the environmental consequences of the Proposed Action and



alternatives, including the No Action Alternative. The Draft EIS was distributed to agencies, regional libraries, and members of the public who requested copies.

4. *Public/Agency Review.* There was a 45-day public comment period following the Notice of Availability (NOA) for the Draft EIS, which was published in the *Federal Register* on February 7, 2014. This initiated the public comment period, and public hearings were held at each alternative location. During the public hearings, the NGB presented details about the proposal, the NEPA process, and provided attendees an opportunity to provide written and/or oral comments. In addition to receiving verbal and written comments at the hearings, the NGB also accepted written comments from the public and agencies through U.S. mail, website, and email. All substantive comments received during the public comment period have been fully considered and addressed in the Final EIS, as appropriate. Written comments submitted at the public hearing and those received via other means were given equal consideration in the preparation of the Final EIS.

Generally, substantive comments are regarded as those comments that challenge the analysis, methodologies, or information in the Draft EIS as being factually inaccurate or analytically inadequate; that identify impacts not analyzed or develop and evaluate reasonable alternatives or feasible mitigations not considered by the agency; or that offer specific information that may have a bearing on the decision, such as differences in interpretations of significance or of scientific or technical conclusions. Non-substantive comments, which do not require an agency response, are generally considered those comments that express a conclusion, an opinion, or a vote for or against the proposal itself, or some aspect of it; that state a position for or against a particular alternative; or that otherwise state a personal preference or opinion.

5. *Prepare a Final EIS.* The Final EIS has been prepared following the public comment period and includes all written comments and verbal testimony from public and agency reviewers during the public hearing and the comment period. The Final EIS has been revised to reflect public and agency comments, the proponent's responses, and additional information received from reviewers. The Final EIS provides the decision-maker with a comprehensive review of the potential environmental consequences of selecting any of the alternatives carried forward for detailed analysis. A NOA will be published in the *Federal Register* to announce availability of the Final EIS.
6. *Issue a Record of Decision.* The final step in the NEPA process is approval of the Record of Decision (ROD). After the NOA is published in the *Federal Register*, there is a 30-day waiting period before the ROD is signed. The ROD will identify the action that has been selected by the Secretary of the Air Force and what management actions or other

measures would be carried out to reduce, where possible, adverse impacts to the environment.

## **1.6 LEAD AND COOPERATING AGENCIES**

The role of a federal agency in the NEPA process depends on the agency's expertise and relationship to the proposed undertaking. The agency carrying out the proposed action is responsible for complying with the requirements of NEPA. In some cases, there may be more than one federal agency involved in an undertaking. In this situation, a lead agency is designated to supervise preparation of the environmental analysis. Federal agencies, together with state, tribal, or local agencies, may act as joint lead agencies. The NGB and USAF are the proponents for this proposal and are the responsible agencies for preparation of the EIS. As defined in 40 CFR § 1508.5, a cooperating agency is "any Federal agency other than a lead agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment. A state or local agency of similar qualifications, or when the effects are on a reservation, an Indian Tribe may, by agreement with the lead agency, become a cooperating agency." No cooperating agencies have been identified for this EIS.

## **1.7 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT**

Chapter 2 describes the Proposed Action and reasonable alternatives, including the No Action Alternative, and the alternative selection process. Chapter 3 is organized by each of the five alternative bases and presents the environmental baseline conditions at each base. Chapter 4 is also organized by each of the five action alternatives as well as the No Action alternative, and presents the potential environmental impacts associated with implementation of any of the alternatives. Chapter 5 identifies past, present, and reasonably foreseeable projects within the regional context of each of the five alternative locations, and describes potential cumulative impacts of the Proposed Action in combination with these other regional actions at each alternative base. Chapter 6 lists the references cited in the document. Chapter 7 lists those agencies, organizations, and persons that were contacted during the preparation of this EIS. Chapter 8 contains the list of preparers and contributors. In addition to the main text, the following appendices are included in this document: Appendix A, Resource Definitions and Methodologies; Appendix B, Correspondence; Appendix C, Background Information for the Noise Analysis; Appendix D, Air Quality; and Appendix E, Special Status Species Lists.

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## **CHAPTER 2**

# **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

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### **2.1 PROPOSED ACTION**

#### **2.1.1 Overview of the Proposed Action**

The USAF has a requirement to provide refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The NGB proposes to beddown one squadron of 12 KC-46A aircraft at one of five alternative locations: Forbes ANG, Kansas; JB MDL, New Jersey; Pease ANG, New Hampshire; Pittsburgh ANG, Pennsylvania; or Rickenbacker ANG, Ohio. Additionally, one active duty associate unit would be integrated with ANG personnel and equipment, enabling joint training and execution of missions using ANG-assigned aircraft. Furthermore, the NGB would implement construction projects associated with the aircraft beddown at the selected installation. Concurrent with the beddown of the KC-46A, the existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the USAF inventory.

As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action. The proposed beddown is estimated to begin in FY 2018 for the NGB, and construction is estimated to begin in FY 2015. Although proposed construction is necessary for the long-term viability of the beddown, aircraft operations with the KC-46A could begin prior to implementation of the construction.

#### **2.1.2 Requirements of the Proposed Action**

##### **2.1.2.1 Aircraft Beddown/Transition**

The KC-46A is planned to eventually replace existing USAF KC-135s. The NGB proposes to begin this process by replacing the aircraft at the selected location with 12 KC-46A operational aircraft (regardless of how many aircraft are currently at the alternative location). It is estimated that the 12 KC-46A aircraft would be beddown at the selected location beginning in FY 2018. The existing KC-135 aircraft at the selected location would either be relocated to another

installation and/or would be retired out of the USAF inventory. The relocation/retirement actions would be evaluated under NEPA, as appropriate.

#### 2.1.2.2 Facility and Infrastructure Requirements

While basing the KC-46A would require certain facilities and infrastructure to support necessary training and operational requirements, utilizing existing infrastructure to the maximum extent feasible comprises a fundamental basis of the Proposed Action. Where existing facilities and infrastructure cannot meet the needs of the Proposed Action, the NGB would implement construction of necessary new and/or renovated infrastructure and facilities at the selected alternative installation. The type of construction needed would vary by installation and is detailed further in each respective installation Sections 2.3.1 through 2.3.5.

Facility requirements include:

- *Squadron Operations Facility* – Necessary for daily operational activities.
- *Flight Simulator/Boom Operator Training Facility* - Major aircrew training devices required for a 12 PAA KC-46A aircrew continuation training program include one Flight Simulator, one Boom Operator Trainer, and a Fuselage Trainer.
- *Academic Training Facility* (ANG uses *Reserve Forces general purpose training areas*) - Space is necessary to provide space for classroom training and brief/debrief areas.
- *Aircrew Flight Equipment Facility* (ANG incorporates this facility with *Squadron Operations*) – Aircraft equipment and mobility bins are best suited to be located at or near a flightline entry control point.
- *Vehicle Operations Administration and Maintenance Shop*
- *Command Post* – an adequate operational, administrative, and training office space with the ability to discuss up to and including Top Secret, and perform daily and contingency C2 duties.
- *Maintenance Hangar*
- *Corrosion Control/Wash Rack Facility*
- *Fuel System Maintenance Hangar*
- *Parking Ramp for a minimum of eight KC-46A parking spots*
- *Aircraft General Purpose Shops*
- *Maintenance Training Facility*
- *Aerospace Ground Equipment (AGE) Shop*
- *Supply Warehousing*
- *Aerial Port Cargo Facility/Processing yard*

### 2.1.2.3 Personnel Changes

The KC-46A would provide substantial expanded capabilities with only minor overall changes in military personnel; however, the mission would require basing sufficient and appropriate personnel to operate and maintain the Wing and to provide necessary support services. In addition, there would be an active duty associate unit based with the selected MOB 2 alternative installation. The number of personnel would vary by installation and is detailed further in each respective installation Sections 2.3.1 through 2.3.5.

### 2.1.2.4 KC-46A Operations

Under the Proposed Action, the 12 PAA KC-46A aircraft would fly 670 hours per aircraft, per year, for a total of 8,040 hours annually. Because this is a new aircraft flying with a combination of ANG and associate active duty personnel, a uniform distribution of flying hours was assumed for each alternative. This is considered a conservative estimate and any deviation from this would likely be fewer hours flown. Thus, with an average sortie duration (ASD) of 4.0 hours, the KC-46A aircraft would fly 2,010 sorties annually. The 2,010 annual sorties would be flown at a combination of the unit's home-station as well as off-station airfields, where they are able to train in a different setting than their home-station. As discussed in Section 2.3, each of the five alternative installations currently fly a different number of airfield operations per sortie, as well as a different percent of home-station/off-station operations. In developing the analysis for each installation, the

installations' unique ratio of airfield operations was assumed to remain the same into the future, as were the percent of home-station/off-station operations. This resulted in a range of home-station airfield operations across the five action alternatives. Further, it is recognized that there is a recent trend toward an increasing use of flight simulators, which can reduce the number of hours flown. However, without a clear definition in the use of the simulator as opposed to actual airfield operations, the full 8,040 flying hour program has been analyzed for each action alternative. No changes are proposed to airfield departure/arrival patterns and tracks, flight profiles, and use of runways from those that are currently performed with the KC-135 at each MOB 2 location. Any existing noise abatement procedures would continue to be followed.

#### Common Operational Terms

**Sortie:** refers to a single military aircraft from take-off through final landing, and everything that might be conducted during that flying mission. A *sortie* will always include more than one *operation*.

**Operation:** this term can apply to both airfield and airspace activities. At an airfield, an operation consists of a single action such as a take-off, or a landing (i.e., two operations). For airspace and ranges, an operation consists of the use of one airspace unit (e.g., Military Operations Area [MOA], Air Refueling Track) by one aircraft. Each time a single aircraft flies into a different airspace unit, one operation is counted. During a single sortie, an aircraft could fly in several airspace units, and conduct a number of operations; therefore, the number of operations exceeds the number of sorties.

Under the Proposed Action, there would be some increases in the frequency of use and number of operations conducted in the airspace currently used by the KC-135, depending on the increase of sorties over the current baseline at each alternative installation (described in more detail in Sections 2.3.1 through 2.3.5). The KC-46A would use the same airspace currently used by the selected installation, with no new airspace required to support the mission. The types of airspace used would consist of published air refueling tracks, Anchors, Warning Areas, and Military Operations Areas (MOAs). These are found in the Department of Defense (DoD) AP/1B, Flight Information Publication, and Area Planning documents. All air refueling is accomplished above 10,000 feet mean sea level (MSL), although some MOAs are approved for lower altitude flight for training not involving air refueling. While a large percentage of air refueling occurs close to the home-station airfield, KC-135 aircraft refuel in other refueling tracks and Warning Areas located throughout the U.S. Under the Proposed Action, the KC-46A would use the airspace in the same manner as the KC-135 aircraft. It is anticipated that the KC-46A would operate in existing airspace and conduct flight operations similar to the existing KC-135 aircraft; therefore, detailed analysis of airspace will not be conducted in this EIS.

#### **Air Refueling Airspace Terms**

**Air refueling tracks:** Published linear routes identified on air navigation charts that define the flight path used by aircraft when refueling other aircraft. For fixed wing aircraft, this generally occurs above 10,000 feet MSL.

**Anchors:** Air refueling tracks that go in a race-track shape (i.e., loop).

**Warning Areas:** A warning area is airspace of defined dimensions, extending from 3 nautical miles outward from the coast of the United States, containing activity that may be hazardous to non-participating aircraft. The purpose of such areas is to warn non-participating pilots of the potential danger. A warning area may be located over domestic or international waters or both. The airspace is designated with a “W” followed by a number (e.g., W-237).

**Military Operations Area (MOA):** Airspace below 18,000 feet mean sea level (MSL) established to separate military activities from Instrument Flight Rule (IFR) traffic and to identify where these activities are conducted for the benefit of pilots using Visual Flight Rule (VFR).

## **2.2 NARROWING PROCESS FOR ALTERNATIVE BASES**

As previously described, the NGB is programmed to beddown one squadron of 12 PAA KC-46A aircraft at one of five alternative locations. Identification and analysis of alternatives is one of the core elements of the environmental process under NEPA and the USAF’s implementing regulations. The NGB may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 CFR 989.8(c)). Based on extensive analysis by the USAF operations community, a siting study was conducted to determine the specific requirements for beddown of the KC-46A aircraft and to identify potential military installations where this beddown could occur. Following this study, the Secretary of the Air Force and the Chief of Staff of the Air Force approved selection criteria for the KC-46A beddown.

In general, the USAF uses the Strategic Basing process outlined in AFI 10-503 (2010) to select locations to beddown USAF missions. The process begins by identifying all the installations that could reasonably support a given mission. This enterprise of installations is then evaluated using objective criteria to screen the top candidate installations. Major Command-led site surveys are then conducted at each alternative location to determine if the installation could reasonably support the mission in question. The Strategic Basing Executive Steering Group oversees the process and reports findings directly to the Secretary of the Air Force and Chief of Staff of the Air Force. This process was mandated by the Secretary of the Air Force to ensure basing decisions were made using a deliberate, standardized, and repeatable process. The KC-46A basing decision followed this general basing process.

In September 2011, Air Mobility Command (AMC) presented to the Secretary of the Air Force the Lead Command Intent for the KC-46A. This Lead Command Intent described the proposed basing action tenets, force structure mix, basing timelines, other critical information, and will ultimately be used to shape and inform decisions made throughout the USAF Strategic Basing Process. The following planning conventions were derived from the Lead Command Intent:

1. Identify the number of KC-46A aircraft scheduled to be delivered between 2014 and 2018. This time period corresponded to the DoD Future Years Defense Program, which is the program and financial plan approved by the Secretary of Defense, and provides a basis for USAF planning. Planning beyond this time period is speculative due to the uncertainty of funding availability.
2. Identify the number of KC-46A aircraft to be allocated to operations based on then-current national strategic considerations.
3. Determine the number of bases capable of supporting one squadron of up to 12 PAA. PAA are those aircraft assigned to meet the primary aircraft authorization and reflect the number of aircraft flown by a unit in performance of its mission.
4. Recognize additional factors of Plans and Guidance and Global Positioning, which include strategic considerations but do not provide meaningful distinction among bases for USAF training within the U.S. and its territories. An additional Logistics Supportability factor equates to Boeing's support capacity set forth in its contract with the USAF. This factor does not distinguish among bases and is not included in the identification of reasonable MOB 2 beddown alternatives.

Consideration of the planning conventions above led to an initial screening of all ANG installations against the following standards for the MOB 2: 1) A runway of at least 7,000 feet in length, 2) the presence of an ANG Wing on the installation, and 3) the installation had to be located in the continental United States (CONUS). The initial screening yielded a defined enterprise of 83 candidate installations to be evaluated for the MOB 2 beddown. In 2012, AMC presented objective screening criteria to the Strategic Basing Executive Steering Group to be used in the identification of bases for the beddown of the KC-46A. The approved criteria were



used to screen the enterprise of 83 candidate installations to identify those installations' capacity to successfully support the MOB 2 mission. The objective criteria included mission, capacity, environmental considerations, and cost and are described in more detail below:

*Ability to meet the mission requirements.* Under this criterion, the candidate location must be within reasonable proximity to refueling receiver demand, airfield and airspace availability, fuel system capabilities, and must have the potential to establish an association with an active duty unit.

*Capacity.* The candidate location must have hangar capacity; runway length and weight bearing capacity; ramp space; base operation support capacity; squadron operations facilities with aircraft maintenance units; aircrew, maintenance, and fuselage training capabilities; and the necessary communications infrastructure.

*Environmental Constraints.* The candidate location must be able to demonstrate conformity with the respective State Implementation Plan (SIP), meet the local community's adoption of zoning or other land use controls to reduce encroachment and preserve the base's flying operations, waivers or absence of incompatible development in the clear zone (CZ) and/or accident potential zone (APZ), and have an absence or limited amount of incompatible development within noise contours above 65-decibel (dB) Day-Night Average Sound Level (DNL).

*Cost.* Given budgetary constraints, it was important for the USAF to select candidate bases that have a favorable area construction factor based on DoD Facilities Pricing Guide, dated June 2007 (DoD 2007), as updated by the June 2009 draft Office of the Secretary of Defense Pricing Guide (DoD 2009a).

The Secretary of the Air Force considered the objective screening results as well as qualitative operational factors in determining the alternative installations for the KC-46A MOB 2 mission. These military judgment factors included:

- Plans and Guidance
- Global and Regional Coverage
- Combatant Commander Support
- Total Force
- Beddown Timing
- Force Structure
- Training Requirements and Efficiencies
- Logistic Supportability
- Resources/Budgeting

The Strategic Basing Process described above resulted in the identification of five alternative bases for consideration.

- Forbes ANGS, Kansas
- JB MDL, New Jersey
- Pease ANGS, New Hampshire
- Pittsburgh ANGS, Pennsylvania
- Rickenbacker ANGS, Ohio

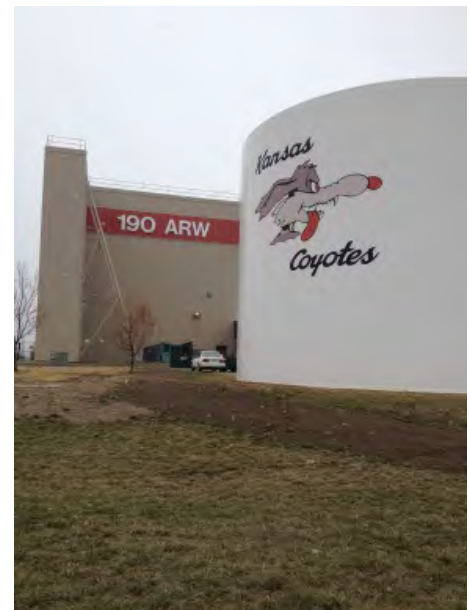
## **2.3 ACTION ALTERNATIVES CARRIED FORWARD**

This section describes the specific requirements of the beddown of one squadron of 12 KC-46A aircraft at each of the five alternative installations.

### **2.3.1 Alternative #1 – Forbes Air National Guard Station**

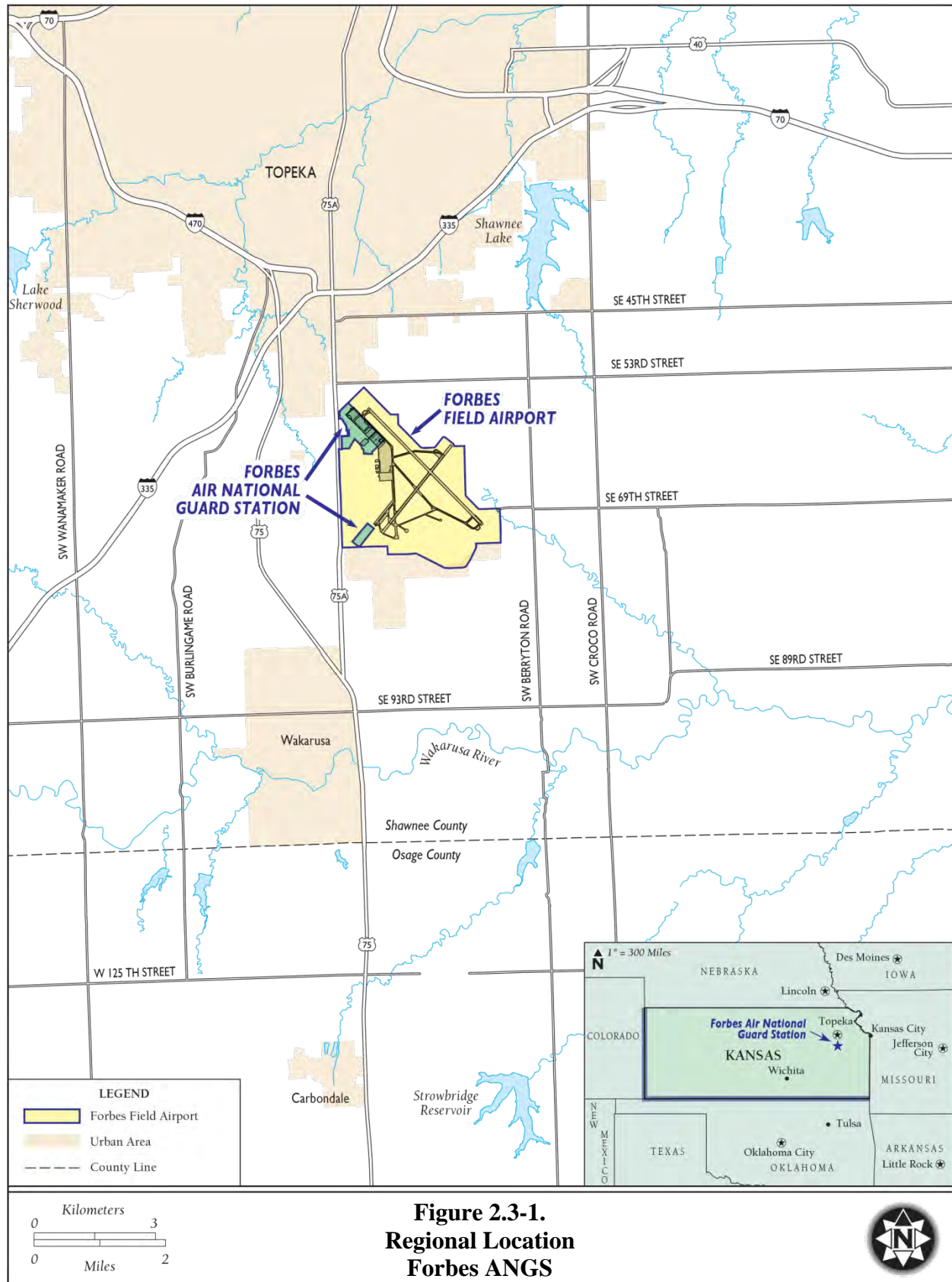
#### **2.3.1.1 Background**

Forbes ANGS, home of the 190<sup>th</sup> Air Refueling Wing (190 ARW) of the Kansas Air National Guard (KS ANG), is located approximately 5 miles south of Topeka in Shawnee County, Kansas (Figure 2.3-1). The 190 ARW base is situated on the northwest side of Forbes Field Airport, a municipal airport owned and operated by Metropolitan Topeka Airport Authority (MTAA). The 190 ARW holds a lease with the Forbes Field Airport for the installation property with a termination date of 2057. The installation occupies approximately 216 acres.



#### **2.3.1.2 Mission**

The 190 ARW of the KS ANG is a tenant at Forbes Field Airport in Topeka, Kansas. The 190 ARW is tasked with providing air-to-air refueling and airlift capabilities for DoD assets worldwide. The 190 ARW also supports state emergency missions. The 190 ARW currently flies and maintains 12 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 190 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.



### 2.3.1.3 Aircraft Conversion

Under Alternative #1, the 190 ARW would convert from 12 KC-135 PAA and no KC-135 Backup Aerospace Vehicle Inventory (BAI) to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Forbes ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.

### 2.3.1.4 Airfield Operations

Forbes Field Airport has two runways; Runway 13/31 is 12,802 feet long and 200 feet wide and Runway 03/21 is 7,001 feet long and 150 feet wide (AirNav 2013a).

The 190 ARW currently flies 1,478 sorties annually. According to the unit's scheduling data and airport traffic counts, 946 of these sorties were flown from Forbes Field Airport, or 64 percent of the total annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield operational data collected for 2012 indicates that the 190 ARW accounted for 10,452 airfield operations, with an average of 11 airfield operations per sortie (Table 2.3-1).

**Table 2.3-1. Current 190 ARW KC-135 Operations at Forbes Field Airport**

Aircraft	DEPARTURES		ARRIVALS		TOTAL		Grand Total <sup>1</sup>
	Day	Night <sup>1</sup>	Day	Night <sup>1</sup>	Day	Night <sup>1</sup>	
KC-135	4,541	685	4,390	836	8,931	1,521	10,452

Notes: 1. Night –Between 10 p.m. and 7 a.m. for environmental night.

Source: FAA 2012a.

Following the aircraft beddown under Alternative #1, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties annually, 64 percent of which would be performed at the home-station (Forbes ANG). Thus, it is expected that up to 1,286 sorties would be flown at Forbes Field Airport annually under this alternative. This would be an increase of 36 percent over the 946 home-station sorties identified in 2012 (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Forbes ANG under this alternative). Based on 1,286 annual home-station sorties and an average of 11.32 operations per sortie, there would be 14,562 annual home-station operations, or an additional 4,110 airfield operations annually at Forbes Field Airport (Table 2.3-2). This would increase the average daily airfield operations from 40.2 to 56.0 (Table 2.3-3). There would be no changes expected to departure/arrival patterns and tracks, flight profiles, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.1.1, *Noise*).

**Table 2.3-2. Proposed 190 ARW KC-46A Operations at Forbes Field Airport**

<i>Aircraft</i>	<i>DEPARTURES</i>		<i>ARRIVALS</i>		<i>TOTAL<sup>1</sup></i>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	6,322	959	6,118	1,163	12,440	2,122	14,562

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-3. Changes to 190 ARW Airfield Operations with Proposed KC-46A Aircraft<sup>1</sup>**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
190 ARW	10,452 (40.2)	14,562 (56.0)	4,110 (39.3%)

Note: 1. Yearly operations for Forbes are based on a 5-day flying week, or 260 days/year.

### 2.3.1.5 Airspace Operations

The 190 ARW conducts air refueling for both training and contingency missions for receiver aircraft. Primary air refueling tracks used by the 190 ARW are described in Table 2.3-4. Under Alternative #1, there would be a change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and would use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the airspace for each sortie and the operational training conducted would not be expected to change in any of the airspace described.

**Table 2.3-4. Current and Proposed Local Air Refueling Airspace Used by the 190 ARW<sup>1</sup>**

<i>Airspace Unit Altitude Floor and Ceiling</i>	<i>Current Aircraft Proposed Aircraft</i>	<i>Minutes in Airspace for Each Sortie</i>	<i>Average KIAS<sup>2</sup></i>	<b>ANNUAL SORTIE OPERATIONS</b>	
				<i>Current</i>	<i>Proposed</i>
AR 116 12,000-FL220	KC-135 KC-46A	55	275	100	136
AR 330 FL190-FL220	KC-135 KC-46A	55	275	100	136
AR 406H FL 260-290	KC-135 KC-46A	55	275	100	136
AR 406L FL200-FL220	KC-135 KC-46A	55	275	100	136
AR 406H FL260-FL280	KC-135 KC-46A	55	275	100	136
AR 110 FL240-FL270	KC-135 KC-46A	55	275	100	136
112 FL240-FL310	KC-135 KC-46A	55	275	100	136
AR 105 FL190-FL330	KC-135 KC-46A	55	275	100	136
Eureka MOA R 5502 6,000 feet MSL UTBNI FL 180	KC-135 KC-46A	30	315	100	136
Bison MOA 1,000 feet MSL UTBNI FL180	KC-135 KC-46A	30	315	100	136
Truman MOA 5,000 feet MSL UTBNI FL180	KC-135 KC-46A	30	315	100	136
HOG HI MOA 6,000 feet MSL UTBNI FL180	KC- 135 KC-46A	30	315	100	136

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 190 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.

2. Annual sortie operations are the number of times air refueling track/MOA is scheduled to be used by unit. KIAS = knots indicated airspeed; FL = Flight Level; MOA = military operations area; UTBNI = up to, but not including; MSL = mean sea level.



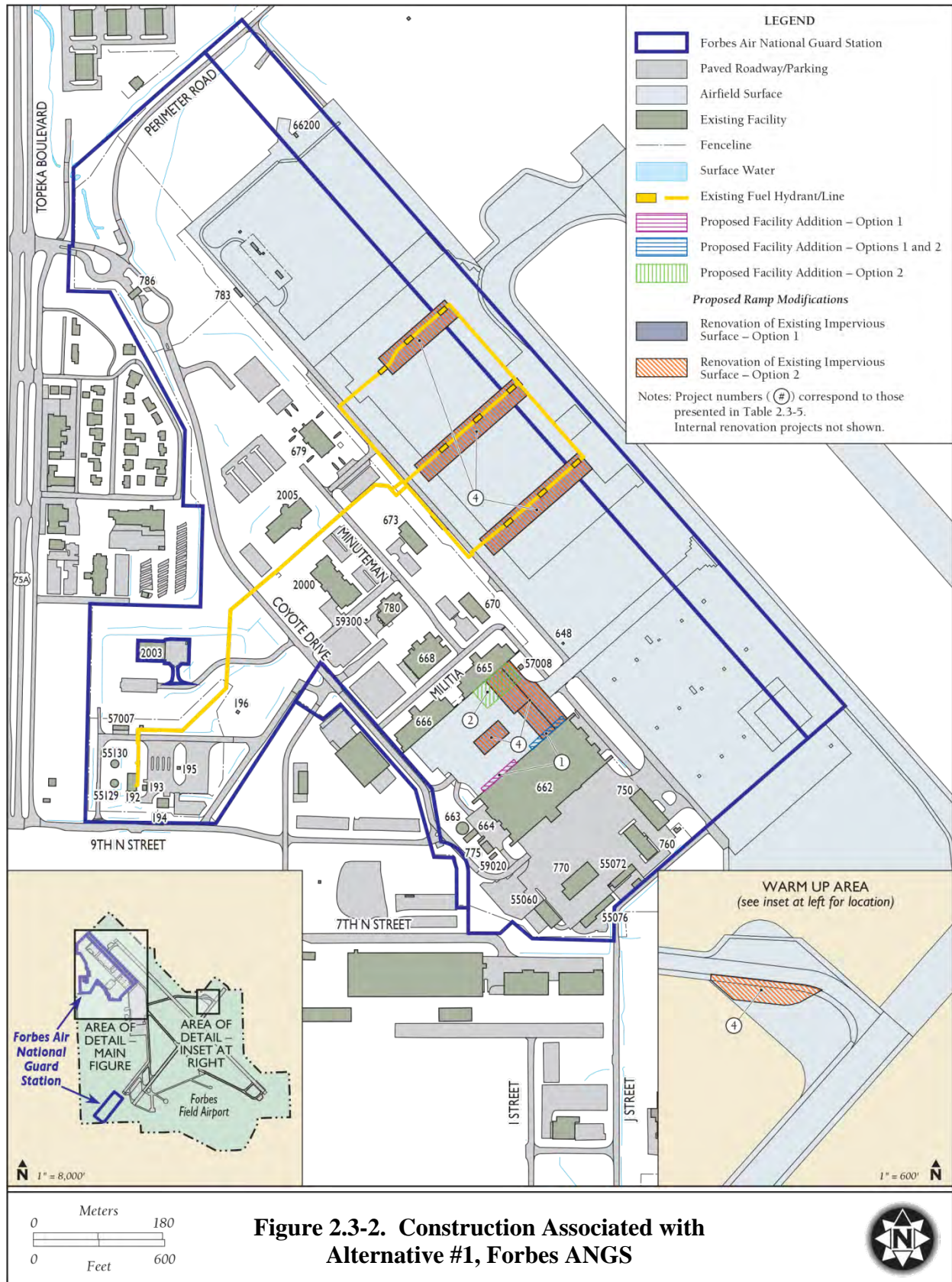
## 2.3.1.6 Construction Required

Under Alternative #1, 12 KC-46A PAA aircraft would be beddown at the 190 ARW installation at Forbes Field Airport, Kansas; the 190 ARW would also implement construction projects for that conversion (Table 2.3-5). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). Anti-Terrorism/Force Protection (AT/FP) requirements also would be incorporated. Proposed facilities would be sited approximately as shown in Figure 2.3-2. The precise layout and design of proposed facilities is in the early planning stages; therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

**Table 2.3-5. Proposed 190 ARW Construction Projects at Forbes Field Airport**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 (Option 1) – Addition to Hangar 662</b>			
This project would include the construction of two additions totaling 11,657 SF to Hangar 662 in order to provide an adequately sized hangar for the new KC-46A aircraft, Fuel Cell Hangar, Maintenance Hangar, Weapons System Trainer, and Boom Operator Trainer.	11,657	0	FY 2015
<b>Project #1 (Option 2) – Addition to Hangar 662</b>			
This project would involve a 5,847 SF addition to include a Maintenance Hangar, Weapons System Trainer, and Boom Operator Trainer, and Fuselage Trainer	5,847	0	FY 2015
<b>Project #2 (Option 1) – Internal Renovations to Hangar 665</b>			
Renovate the building interior to include a Fuselage Trainer.	0	0	FY 2015
<b>Project #2 (Option 2) – Addition to Hangar 665</b>			
This project would include a 18,985 SF addition to the Fuel Cell Hangar in order to provide an adequately sized hangar for the new KC-46A aircraft.	18,985	0	FY 2015
<b>Project #3 – Internal Renovations to Building 679</b>			
This project would reallocate space within the building for aircrew flight equipment. No modifications would be necessary for squadron operation, base operations, and command post.	0	0	FY 2015
<b>Project #4 (Option 1 and 2) – Pave Apron /Hydrants and Airfield Hold Ramp<sup>1</sup></b>			
This project would include the repair of pavement over the hydrant system and apron pavement between the hangars (184,820 SF).	184,820	0	FY 2015
<b>Project #4 (Option 2) – Pave Apron /Hydrants and Airfield Hold Ramp</b>			
This project would include repavement of approximately 42,687 SF of the airfield hold ramp off the second runway as well as the 184,820 SF addition described above.	227,507	0	FY 2015
<b>Total</b>	<b>258,149<sup>2</sup></b>	<b>0</b>	

Notes: 1. Two options are possible for the modifications to these projects. Only one of these options would be implemented.  
 2. The total construction footprint includes only the project option that has the greatest footprint of each of the options so as to represent the most conservative (highest amount) facility footprint given the multiple options possible.  
 SF=square feet; FY = fiscal year





Implementation of the KC-46A aircraft beddown would require the 190 ARW to ensure its installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. The Forbes ANG location was deemed to have an acceptable level of facilities to support this beddown and has facilities that currently meet the majority of the requirements identified in Section 2.1.2.2. However, some functional areas require modification. Two construction scenarios are under consideration. Under Option 1, two buildings would be renovated to accommodate the KC-46A maintenance, fuel cell, Weapons System Trainer, Boom Operator Trainer, and Fuselage Trainer. Minor adaptations would be made to a third building to accommodate aircrew flight equipment. This option assumes Sustainment, Restoration, and Modernization execution of pre-existing ramp and primary runway repairs. No changes to fuel hydrants and fuel lines would be required on the parking apron under this option. Under Option 2, two buildings would be renovated: Hangar 662, the Maintenance Hangar, would be modified to house the Maintenance Hangar, Weapons System Trainer, Boom Operator Trainer, and the Fuselage Trainer. Hangar 665, the Fuel Cell Hangar, would be modified to house the Fuel Cell Hangar. Concrete pavements directly over the existing hydrant systems would be repaired and the ramp would be re-striped. Pavement would be added to the airfield hold ramp off the second runway. The hydrant system would be maintained in its current state.

The projects described would incorporate Leadership in Energy and Environmental Design (LEED) and sustainable development concepts. This would achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be offset with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

#### *Addition to Hangar 662*

A minimum of one Fuel Cell Hangar is required to support the maintenance and operations of KC-46A. Additionally, a minimum of one Maintenance Hangar is required to support the maintenance and operations of KC-46A. Hangars provide an environmentally controlled area to perform maintenance on vital components of the aircraft system. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135, thus requiring slightly larger hangars. Hangar 662 would be modified to meet KC-46A requirements. One of two options could occur



*South Side of Hangar 662*

to satisfy these requirements. Option 1 would house the maintenance shops and safety systems required to perform fuel systems maintenance including pressure checks and inspections. Aircraft hangar space for on-aircraft open fuel cell maintenance would be provided. Interior modifications also would be made to house the KC-46A Weapons System Trainer and Boom Operator Trainer. Option 1 would include the construction of two additions totaling 11,657 square feet (SF). Option 2 would provide space for a Maintenance Hangar, Weapons System Trainer, Boom Operator Trainer, and the Fuselage Trainer. Option 2 would include the construction of a 5,847 SF addition.

#### *Modify Hangar 665*

Space would be required for housing the various KC-46A simulators and maintenance functions. One of two options could occur to satisfy this requirement. Option 1 includes internal renovations to Hangar 665 to house the KC-46A Fuselage Trainer. Option 2 includes internal renovations and the construction of an 18,985 SF addition to Hangar 665 to accommodate aircraft fuel cell maintenance.

#### *Modify Building 679*

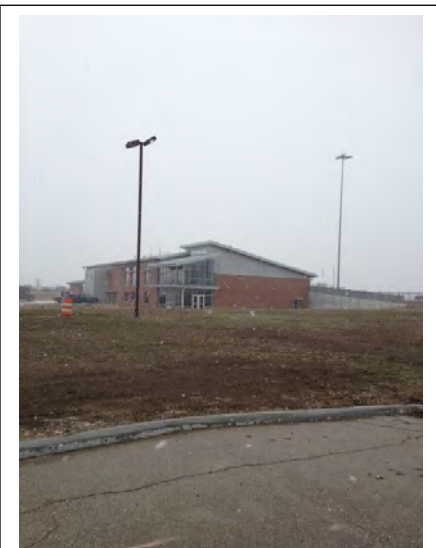
Building 679 was recently renovated; however, areas within the building would need minor interior modifications to house Aircrew Flight Equipment.

#### *Pave Aprons/Hydrant Areas and Airfield Hold Area*

The pavement conditions, such as thickness and strength of the hydrant and aircraft apron areas, are important factors in avoiding damage to the KC-46A and/or to the airfield pavement. One of two options could occur under Alternative #1 to satisfy the pavement requirements. Under both Option 1 and Option 2, this project would replace the concrete over the hydrant system and apron areas in the quad; the concrete in these areas currently is rated as in 'poor' condition. Under Option 2, a 42,687 SF area of the Airfield Hold Area would also be repaved. Under both options, this project would add pavement to the airfield hold ramp off the secondary runway.



*Hangar 665 (on the right)*



*Building 679*

### 2.3.1.7 Personnel Changes

The 190 ARW currently is authorized 1,242 personnel (Table 2.3-6). Under this alternative, the KC-46A mission would add an additional 194 military positions to the authorized manning requirement at Forbes ANG (approximately a 16 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-6.

**Table 2.3-6. Comparison of Currently Authorized and Proposed 190 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	78	78	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	297	310	13
Non-Dual Status (DoD civilians, Air Traffic Control)	28	28	0
<i>Subtotal</i>	<i>403</i>	<i>615</i>	<i>212</i>
<b>Part Time</b>			
Drill Status Guardsmen	839	821	-18
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,242</b>	<b>1,436</b>	<b>194</b>
<b>Total Personnel On Base</b>	<b>945</b>	<b>1,126</b>	<b>181</b>

*Note:* 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.  
2. Some personnel work off-site but are assigned to the unit.

## 2.3.2 Alternative #2 – Joint Base McGuire-Dix-Lakehurst

### 2.3.2.1 Background

JB MDL, home of the 108<sup>th</sup> Wing (108 WG) of the New Jersey Air National Guard (NJ ANG), is located in central New Jersey, spanning more than 20 miles with more than 42,000 contiguous acres (see Figure 2.3-3). The base is located 18 miles southeast of Trenton, 45 miles east of Philadelphia, 50 miles south of New York City, and 14 miles inland from the Atlantic Ocean. JB MDL is located in Ocean and Burlington Counties. The 108 WG installation is situated on the northwest side of McGuire Field within JB MDL. The 108 WG holds an indefinite lease with JB MDL for the installation property. Within Chapters 3 and 4, various resources discuss either JB MDL or McGuire Field, based on the region of influence (ROI) for each particular resource.



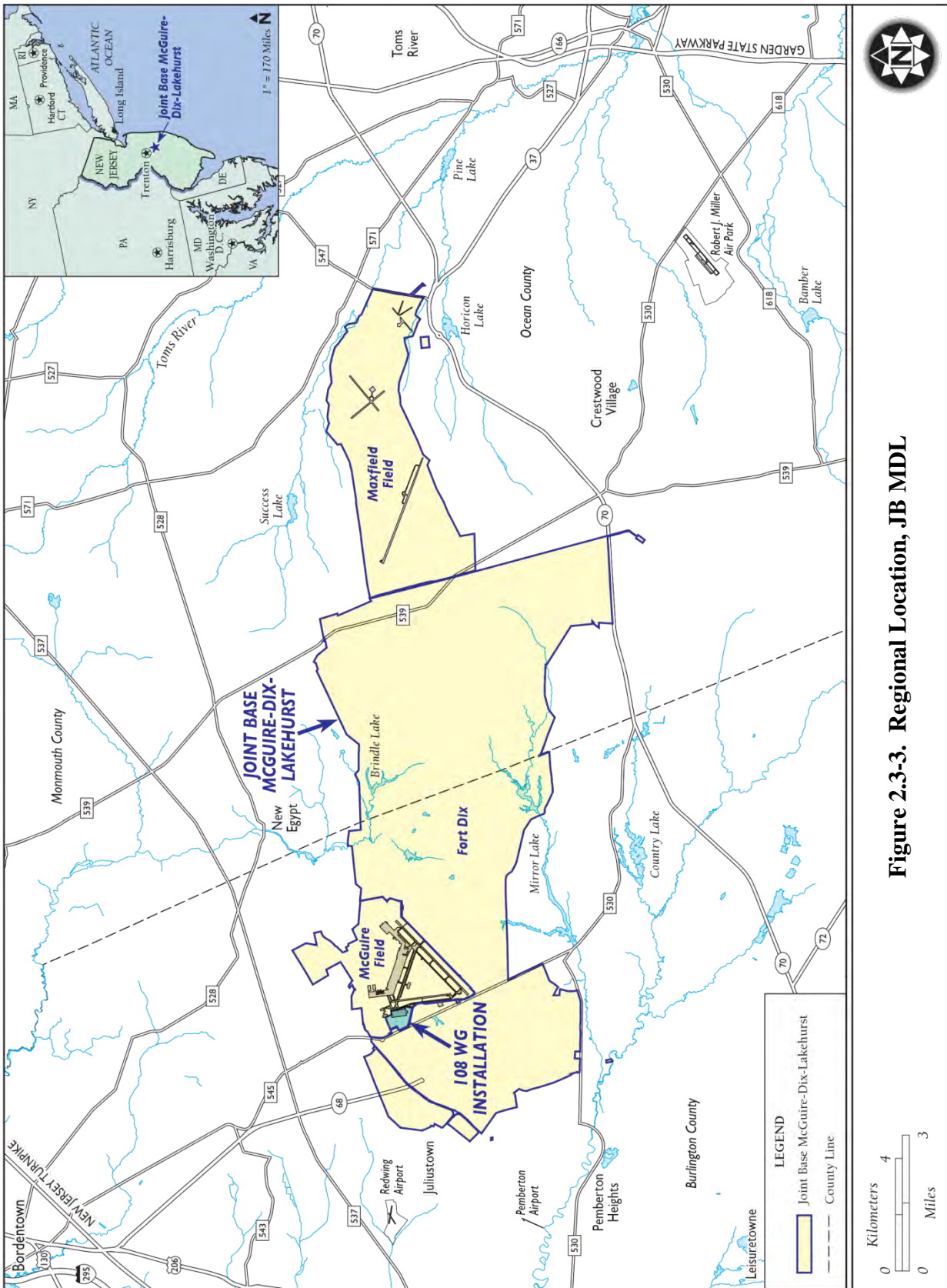


Figure 2.3-3. Regional Location, JB MDL

#### 2.3.2.2 Mission

The mission of the 108 WG is to provide support for federal, state, and community interests by providing timely worldwide air refueling, airlift, and support forces; protecting life and property; and preserving peace, order, and public safety. The 108 WG currently flies and maintains eight KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 108 WG include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

#### 2.3.2.3 Aircraft Conversion

Under Alternative #2, the 108 WG would convert from 8 KC-135 PAA and 1 KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at JB MDL, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.

#### 2.3.2.4 Airfield Operations

McGuire Field has two runways; Runway 06/24 is 10,014 feet long and 150 feet wide and Runway 18/36 is 150 feet wide and 7,126 feet long (JB MDL 2013a).

The 108 WG currently flies 1,112 sorties annually. According to the unit's scheduling data and Air Traffic Control counts, 834 of these sorties were flown from McGuire Field, or 75 percent of the total annual sorties flown (108 WG 2013a). The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield operational data collected from 2012 indicates that the 108 WG accounted for 8,340 annual operations with an average of 10 operations per sortie (Table 2.3-7) (108 WG 2013a).



**Table 2.3-7. Current 108 WG KC-135 Operations at McGuire Field**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-135	3,346	815	3,325	854	6,671	1,669	8,340

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

Source: 108 WG 2013a.

Following the aircraft beddown under Alternative #2, the KC-46A aircraft would fly a total of 8,040 hours, with an ASD of 4.0 hours. This would result in 2,010 annual sorties, 75 percent of which would be performed at the home-station (McGuire Field). Thus, it is expected that up to 1,508 sorties would be flown at McGuire Field. This would be an increase of 81 percent over the baseline 834 sorties identified in the McGuire Field Noise Study (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at McGuire Field under this alternative) (JB MDL 2013a). Based on 1,508 annual home-station sorties and an average of 11.68 operations per sortie, there would be 17,608 annual home-station operations, or an additional 9,268 airfield operations annually at McGuire Field (Table 2.3-8). This would increase the average daily airfield operations from 22.9 to 48.2 (Table 2.3-9). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.2.1, *Noise*).

**Table 2.3-8. Proposed 108 WG KC-46A Operations at McGuire Field**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night</i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	8,047	764	7,863	934	15,910	1,698	17,608

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-9. Changes to 108 WG Airfield Operations with Proposed KC-46A Aircraft**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
108 WG	8,340 (22.9)	17,608 (48.2)	9,268 (111.1%)

#### 2.3.2.5 Airspace Operations

The 108 WG conducts air refueling for both training and contingency missions for the receiver aircraft. Primary air refueling tracks used by the 108 WG are described in Table 2.3-10. Under Alternative #2, there would be an increase to the frequency of use of the associated airspace due to the proposed increase in the number of sorties conducted annually. The KC-46A will also

have a requirement for training as a receiver aircraft (on-loading fuel) and would use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). Currently, approximately 80 percent of the sorties flown from McGuire Field conduct air refueling training using the tracks found in Table 2.3-10. There would be an increase of 5,400 air refueling operations spread over the existing air refueling tracks currently used by the 108 WG. The increase would range from a maximum annual increase of 88 air refueling operations on the AR 777 track, to the smallest increase of 4 air refueling operations on AR 633. The refueling tracks identified in Table 2.3-10 are the most commonly used with a wide variety of other tracks being used less frequently.

**Table 2.3-10. Current and Proposed Local Air Refueling Airspace Used by the 108 WG<sup>1</sup>**

Airspace Unit Altitude <sup>2</sup> Floor and Ceiling	Current Aircraft Proposed Aircraft	Minutes in Airspace for Each Sortie	Average KIAS	ANNUAL SORTIE OPERATIONS	
				Current	Proposed
W107 <sup>2</sup> A-Unlimited <sup>3</sup>	KC-135 KC-46A	60	315	70	127
AR 777 FL210-FL280	KC-135 KC-46A	80	275	109	197
AR 220/218 FL190-FL220	KC-135 KC-46A	75	275	20	36
AR 631/609 FL200-FL260	KC-135 KC-46A	75	265	48	87
AR 636 FL200-FL290	KC-135 KC-46A	75	300	25	45
AR 207 SW/NE FL180-FL280	KC-135 KC-46A	90	265	17	31
AR 202 S/AN FL250-280	KC-135 KC-46A	75	265	15	27
AR 328 FL180-FL230	KC-135 KC-46A	90	275	16	29
AR 633 FL180-FL230	KC-135 KC-46A	70	275	5	9

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 108 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.

2. W-Warning Area Floor is the surface but no refuelings occur below 10,000 feet MSL.

3. FL Altitude is Mean Sea Level.

KIAS = knots indicated airspeed; FL = Flight Level

Source: 108 WG 2013b.

#### 2.3.2.6 Construction Required

Under Alternative #2, 12 KC-46A PAA aircraft would be beddown at the 108 WG installation at JB MDL; the 108 WG would also implement minor construction projects for that conversion (Table 2.3-11). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements would also be addressed to the extent practicable. Proposed facilities would be sited approximately as shown in Figure 2.3-4. The precise layout and design of proposed facilities is in the early planning stages, and therefore, exact locations and layouts are not finalized. Should

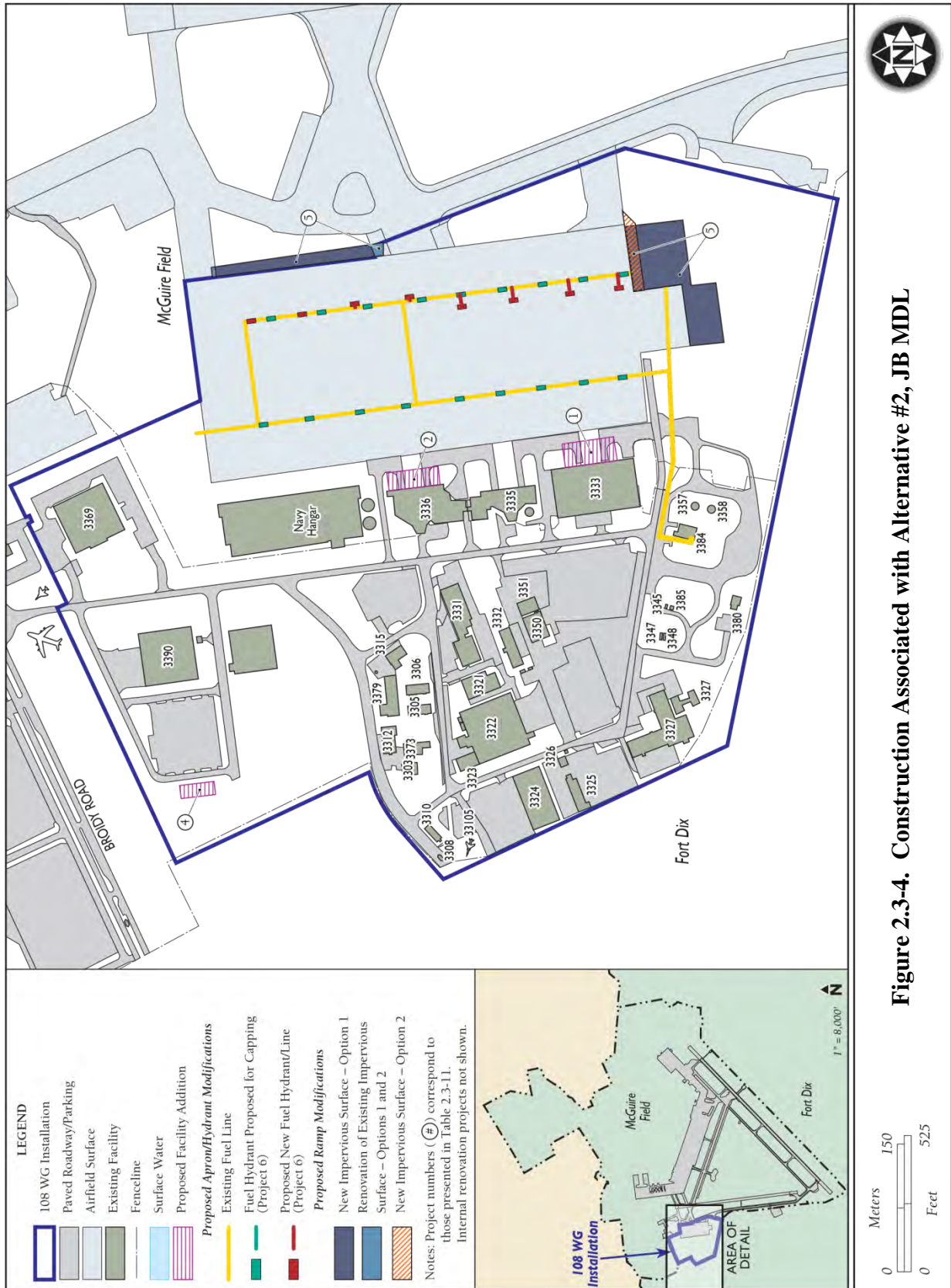
locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

**Table 2.3-11. Proposed 108 WG Construction Projects at McGuire Field**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 – Addition to Hangar 3333</b>			
This project would involve the addition of a 17,892 SF addition to the existing Maintenance Hangar 3333 to provide an adequately sized hangar for the new KC-46A aircraft.	17,892	4,728	FY 2015
<b>Project #2 – Addition to Hangar 3336</b>			
This project would involve the addition of an 18,206 SF addition to the existing Fuel Cell Hangar 3336 to provide an adequately sized hangar for the new KC-46A aircraft.	18,206	5,137	FY 2015
<b>Project #3 – Internal Renovations to Hangar 3322</b>			
This project would include internal renovations only to provide sufficient space to house the KC-46A Fuselage Trainer Simulator.	0	0	FY 2015
<b>Project #4 – New Simulator Building</b>			
This project would include the construction of a new 6,700 SF simulator building to house the Weapons System Trainer and the Boom Operator Trainer.	6,700	6,700	FY 2015
<b>Project #5 (Option 1) – Modifications to Existing Parking Ramp and Taxiway<sup>1</sup></b>			
This project would include the addition of concrete and asphalt to the existing parking ramp and renovation of a small portion of the taxiway. The construction footprint for this project would total approximately 160,074 SF.	160,074	88,319	FY 2015
<b>Project #5 (Option 2) – Modifications to Existing Parking Ramp and Taxiway</b>			
This project would include the addition of 12,029 SF of concrete and asphalt to the existing parking ramp as well as renovation of approximately 2,062 SF of existing taxiway surfaces .	14,091	12,029	FY 2015
<b>Project #6 – New Hydrants and Fuel Lines and Demolition of Existing Hydrants</b>			
This project would include the addition of eight new fuel hydrants as well as new fuel lines to these hydrants. Approximately 1,137 SF of disturbance would occur as a result of the new hydrants and fuel lines.	1,137	0	FY 2015
<b>Total</b>	<b>204,009<sup>2</sup></b>	<b>104,884<sup>2</sup></b>	

Notes: 1. Two options are possible for the modifications to the existing parking ramp and taxiway. Only one of these options would be implemented.  
 2. The total construction footprint includes only the project option that has the greatest footprint of each of the options so as to represent the most conservative (highest amount) facility footprint given the multiple options possible.  
 SF = square foot; FY = fiscal year





Implementation of the KC-46A aircraft beddown would require the 108 WG to ensure their installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. Although the JB MDL location was deemed to have an acceptable level of facilities to support this beddown, and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2, there remain some functional areas that would require modification. Proposed construction includes: addition to Hangar 3333, addition to Hangar 3336, internal renovations of Hangar 3332, construction of a new simulator building, modification to existing ramp and taxiway, and addition and demolition of hydrants and fuel lines on the parking apron.

The projects described below would incorporate LEED and sustainable development concepts, so as to achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be rewarded with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

#### *Addition to Hangar 3333*

A minimum of one Maintenance Hangar is required to support the maintenance and operations of the KC-46A. Hangars provide an environmentally controlled area to perform maintenance. The hangar bays require enough space to use the support equipment such as stands and carts to perform maintenance functions. The hangars would house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 17,892 SF addition to Hangar 3333 would need to be added to accommodate the larger aircraft inside the maintenance hangar. Following the construction, there would be an increase of approximately 4,728 SF of impervious surface as a result of this project.



*Hangar 3333*

### *Addition to Hangar 3336*

A minimum of one Fuel Systems Maintenance Hangar is required to support the maintenance and operations of the KC-46A aircraft. The Fuel Systems Maintenance Hangar provides space for covered aircraft maintenance, shop and administrative functions, and contains utilities and safety systems required to perform fuel systems maintenance to include pressure checks and inspections. Aircraft hangar space is required for on-aircraft open fuel cell maintenance. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, an 18,206 SF addition to Hangar 3336 would be required to accommodate the larger aircraft inside the maintenance hangar. Following the construction, there would be an increase of approximately 5,137 SF of impervious surface as a result of this project.



*Hangar 3336*

### *Internal Renovations to Hangar 3322*

Internal renovations to Hangar 3322 would be implemented to house the KC-46A Fuselage Trainer Simulator.

### *New Simulator Building*

A new 6,700 SF building would be constructed west of Building 3390 to house the Weapons System Trainer and the Boom Operator Trainer. Following the construction, there would be an increase of approximately 6,700 SF of impervious surface as a result of this project.



*Proposed Area for the New Simulator Building*

### *Modifications to Existing Parking Ramp*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. Additional concrete would be added to the parking ramp and taxiway at JB MDL in order to increase the size of the parking ramp to accommodate the larger KC-46A aircraft. Two options are possible for the modifications to the existing parking ramp. Only one of these options would be implemented.



*Proposed Area for Parking Ramp Modifications*

1. The first option is to add additional pavement to the northeast side of the apron to increase width for taxiing; add pavement to the southeast side for taxiing; and add pavement to the south side for engine run-ups. This would allow for a 50-foot wing clearance for taxiing. In addition, this option would include the renovation of approximately 2,062 SF of the existing taxiway. This project would include a total of 160,074 SF of new pavement. Following the construction, there would be an increase of approximately 88,319 SF of impervious surface as a result of this project.
2. The second option would include a 12,029 SF addition of a small pavement area on the southeast side of the apron as well as the renovation of approximately 2,062 SF of the existing taxiway. Under this option, a waiver would be required since the wing tip clearance would be reduced to only 25 feet instead of 50 feet. The total SF of disturbance would be approximately 14,091 SF. Following the construction, there would be an increase of approximately 12,029 SF of impervious surface as a result of this project.

### *New Hydrants and Fuel Lines and Demolition of Existing Hydrants*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. To fuel an aircraft, one R-12 fueling truck is needed instead of several. Under Alternative #2, eight new fuel hydrants would be added to the existing parking ramp as well as new fuel lines to one of these hydrants. Approximately 1,137 SF of disturbance would occur as a result of the new hydrants and fuel lines.



### 2.3.2.7 Personnel Changes

The 108 WG currently is authorized 1,329 personnel. Under Alternative #2, the KC-46A mission would add an additional 287 military positions to the authorized manning requirement (approximately a 22 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-12.

**Table 2.3-12. Comparison of Currently Authorized and Proposed 108 WG Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	138	138	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	278	310	32
Non-Dual Status (DoD civilians, Air Traffic Control)	0	0	0
<i>Subtotal</i>	<i>416</i>	<i>647</i>	<i>231</i>
<b>Part Time</b>			
Drill Status Guardsmen	913	969	56
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,329</b>	<b>1,616</b>	<b>287</b>
<b>Total Personnel On Base</b>	<b>1,051</b>	<b>1,306</b>	<b>255</b>

*Note:* 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

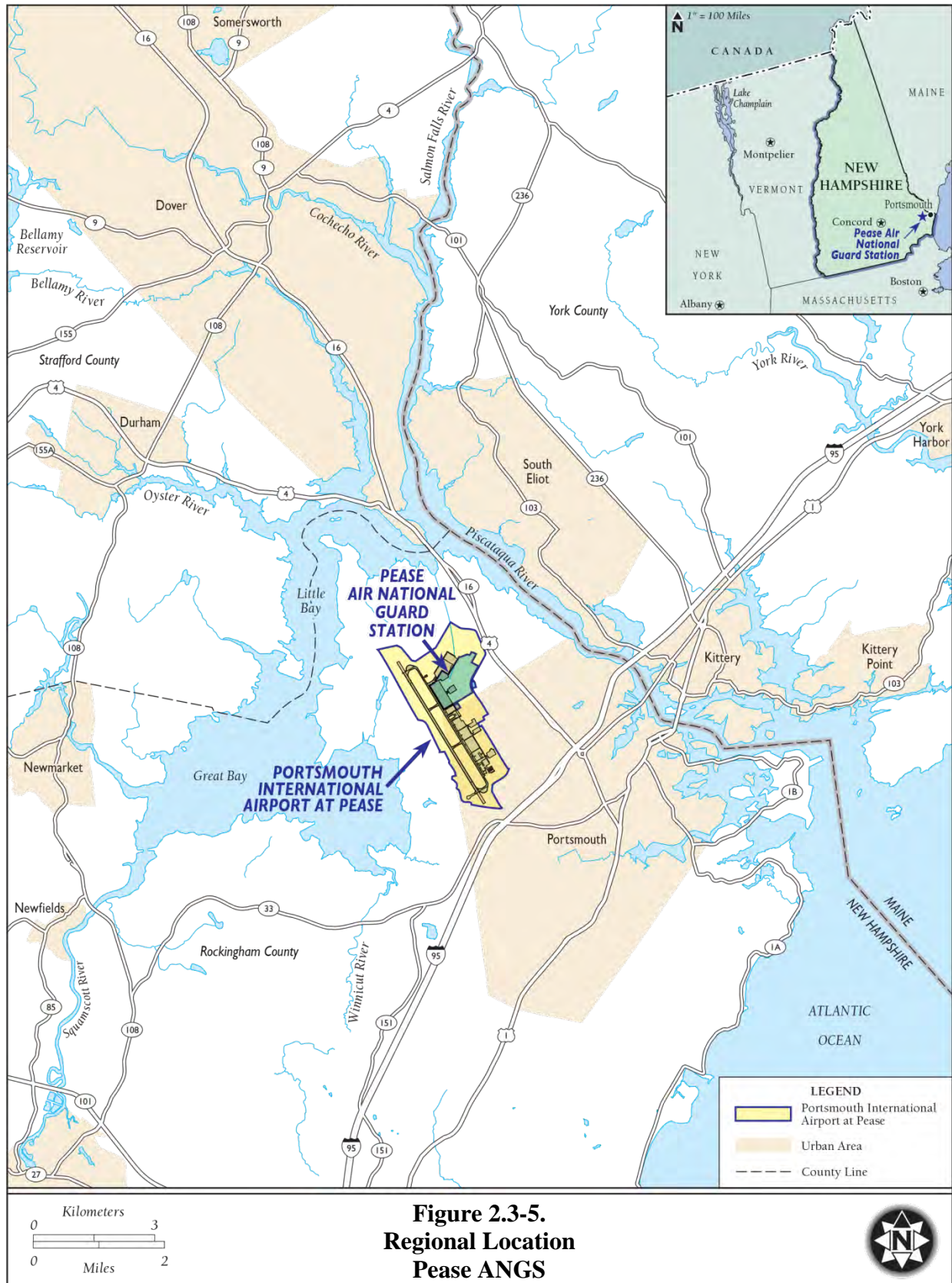
2. Some personnel work off-site but are assigned to the unit.

## 2.3.3 Alternative #3 – Pease Air National Guard Station

### 2.3.3.1 Background

Pease ANG, home of the 157<sup>th</sup> Air Refueling Wing (157 ARW) of the New Hampshire Air National Guard (NH ANG), is located in Portsmouth and Newington, New Hampshire, approximately 55 miles north of Boston, Massachusetts (Figure 2.3-5). The 157 ARW base is situated on the northeast side of the Portsmouth International Airport (IAP) at Pease, which is owned and operated by Pease Development Authority (PDA). The 157 ARW holds an indefinite lease for the installation property. The 157 ARW installation occupies approximately 220 acres.





### 2.3.3.2 Mission

The primary mission of the 157 ARW is to provide worldwide support with the KC-135 air refueling tanker aircraft and to staff, equip, and train combat flying and combat support units to augment the USAF. In addition, the 157 ARW provides both homeland defense and assistance with state emergencies and natural disasters to protect life and property, and to preserve peace, order, and public safety. The major support operations performed at the installation include aircraft fueling, aircraft deicing, aircraft maintenance, AGE maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. Pease ANG also hosts the 64<sup>th</sup> Air Refueling Squadron (64 ARS), which stood up at Pease on October 2, 2009. The 64 ARS is administratively assigned to McConnell AFB's 22<sup>d</sup> Operations Group but is located with, and gets operational direction from, its host unit, the 157 ARW at Pease. This partnership is part of the USAF's TFI effort to increase efficiency by combining active-duty, Guard, and Reserve resources. Aircrew, maintenance, and support personnel assigned to the 64 ARS work alongside Guardsmen flying and maintaining the 157 ARW's aircraft to accomplish the Wing's refueling missions. As of February 2013, 129 active associate personnel were authorized at Pease. It is the first active-duty USAF unit to return to the ANG Base since 1991, when Pease AFB, then an active-duty installation, closed.

Additionally, the installation has a Medical Training Group and operational command of the 260<sup>th</sup> Air Traffic Control Squadron, which operates the air traffic control tower for the airport (157 ARW 2008a).

### 2.3.3.3 Aircraft Conversion

Under Alternative #3, the 157 ARW would convert from 8 PAA KC-135 and 1 KC-135 BAI aircraft to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Pease ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.

### 2.3.3.4 Airfield Operations

Portsmouth IAP has one grooved concrete and asphalt runway, Runway 16/34, which is approximately 11,321 feet long and 150 feet wide (SkyVector 2013a).

The 157 ARW currently flies 1,382 sorties annually. According to the unit's scheduling data and airport traffic counts, 614 were flown from Portsmouth IAP, or 44 percent of the annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 157 ARW accounted for 6,140 annual operations with an average of 10.0 operations per sortie (Table 2.3-13).

**Table 2.3-13. Current 157 ARW Operations at Portsmouth IAP**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>1</sup></i>	<i>Day</i>	<i>Night<sup>1</sup></i>	<i>Day</i>	<i>Night<sup>1</sup></i>	
KC-135 <sup>2</sup>	2,939	131	2,939	131	5,878	262	6,140

Notes: 1. Night –Between 10 p.m. and 7 a.m. for environmental night.

2. Based on KC-135 data provided by 157 ARW/CC.

Source: 157 ARW 2013a.

Following the aircraft beddown under Alternative #3, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties, 44 percent of which would be performed at the home-station (Pease ANG). Thus, 884 sorties would be flown at Pease ANG annually under this alternative. This would be an increase of 44.0 percent over the baseline 614 annual sorties currently flown from Pease ANG (it is assumed the same percentage of sorties would be flown away from Pease ANG under this alternative as under the current baseline conditions). Based on 884 annual home-station sorties and an average of 10.0 operations per sortie, there would be 8,840 annual home-station operations, or an additional 2,700 airfield operations annually at Portsmouth IAP (Table 2.3-14). This would increase the average daily airfield operations from 16.8 to 24.2 (Table 2.3-15). There would be no changes expected to departure/arrival patterns and tracks, flight profiles, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.3.1, *Noise*).

**Table 2.3-14. Proposed 157 ARW KC-46A Operations at Portsmouth IAP**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	4,231	189	4,231	189	8,462	376	8,840

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-15. Changes to 157 ARW Airfield Operations with Proposed KC-46A Aircraft**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
157 ARW	6,140 (16.8)	8,840 (24.2)	2,700 (44.0%)

#### 2.3.3.5 Airspace Operations

The 157 ARW conducts air refueling for both training and contingency missions for receiver aircraft. Primary air refueling tracks used by the 157 ARW are described in Table 2.3-16. Under Alternative #3, there would be a slight change to the frequency of use of the airspace due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will use the existing air refueling tracks as a receiver in



addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the airspace for each sortie, and the operational training conducted would not be expected to change in any of the airspace described.

**Table 2.3-16. Current and Proposed Local Air Refueling Airspace Used by the 157 ARW<sup>1</sup>**

<i>Airspace Unit Altitude Floor and Ceiling</i>	<i>Current Aircraft Proposed Aircraft</i>	<i>Minutes in Airspace for Each Sortie</i>	<i>Average KIAS</i>	<i>ANNUAL SORTIE OPERATIONS</i>	
				<i>Current</i>	<i>Proposed</i>
AR 020 17,000 feet MSL–FL190	KC-135 KC-46A	60	275	154	222
AR 777 FL210-FL280	KC-135 KC-46A	60	275	165	238
AR 062 FL210-FL280	KC-135 KC-46A	60	275	78	112
AR 107 14,000 MSL – FL230	KC-135 KC-46A	60	275	56	81
AR 631 FL200-FL260	KC-135 KC-46A	60	275	198	285
W102 Above 17,000 MSL to FL600	KC-135 KC-46A	30	300	3	4
W105 SFC to FL500	KC-135 KC-46A	30	300	16	23
W107 Surface to Unlimited	KC-135 KC-46A	30	315	19	27
W122 FL190-FL220	KC-135 KC-46A	30	315	2	3
W386 Surface to Unlimited	KC-135 KC-46A	30	315	3	4
Kiwi MOA FL190-FL230	KC-135 KC-46A	30	300	14	20
Duke Surface to 8,000 MSL	KC-135 KC-46A	30	300	9	13
Falcon MOA FL200-FL260	KC-135 KC-46A	30	300	3	4
Yankee 1 <sup>2</sup> 9,000 feet MSL UTBNI FL180	KC-135 KC-46A	30	300	5	7

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 157 ARW in this airspace.

Additional aircraft flown by other units that use this airspace are not shown.

2. MOA Floor is 9,000 feet MSL but no refueling occurs below 10,000 feet MSL.

KIAS = knots indicated airspeed; MSL = mean sea level; FL = Flight Level; MOA = military operations area; UTBNI = up to, but not including.

Source: 157 ARW 2013a.

#### 2.3.3.6 Construction Required

Under Alternative #3, the 157 ARW would implement construction projects for the conversion to 12 KC-46A PAA (Table 2.3-17). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements also would be incorporated. Proposed facilities would be sited approximately as shown in Figure 2.3-6. The precise layout and design of proposed facilities is in the early planning stages; therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

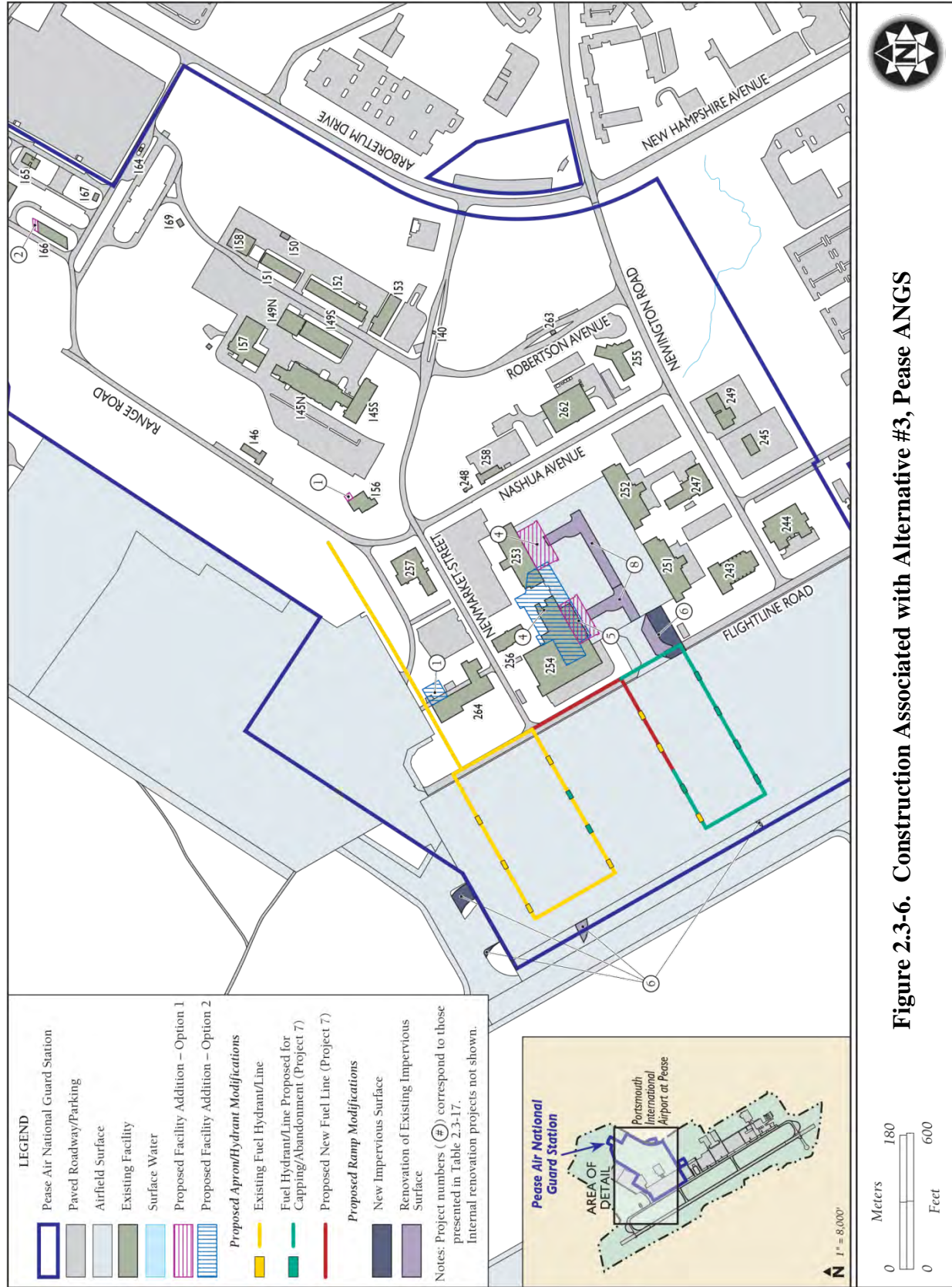
Implementation of the KC-46A aircraft beddown would require the 157 ARW to ensure its installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. The Pease ANG location was deemed to have an acceptable level of facilities to support this beddown and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2. However, some functional areas require modification. Proposed construction includes: renovation and additions to Buildings/Hangars 156, 264, 166, 251, 253, and 254; construction and upgrade of the taxiway; and demolition and installation of new fuel hydrants and fuel lines on the parking apron.

Construction projects would incorporate LEED and sustainable development concepts. This would achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of the project's life cycle. While implementation of LEED standards may result in primary facility costs that exceed DoD costing standards, the initial investment in higher acquisition cost would be offset with lower life cycle costs. LEED certified construction is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

**Table 2.3-17. Proposed 157 ARW Construction Projects at Portsmouth IAP**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 (Option 1) – Renovation/Addition to Building 156<sup>1</sup></b>			
Remove KC-135 Weapons System Trainer and reuse main bay for the KC-46A Weapons System Trainer; upgrade facilities to support storage in the simulator bays; and construct addition to the ground floor to house the Boom Operator Trainer.	750	750	FY 2015
<b>Project #1 (Option 2) – Renovation/Addition to Building 264<sup>1</sup></b>			
This project would construct an 11,600 SF addition to Building 264 to house the KC-46A Weapons System Trainer Bay, KC-46A Boom Operator Trainer Bay, and Computer Server Room.	11,600	11,600	FY 2015
<b>Project #2 - Addition to Building 166</b>			
Add refueler vehicle parking spaces and driveway.	1,100	1,100	FY 2015
<b>Project #3 – Internal Renovations to Hangar 251</b>			
Renovate mezzanines for administrative space and alter hangar bay for deployment processing/fuselage trainer.	0	0	FY 2015
<b>Project #4 (Option 1)– Addition/Alteration to Hangar 253<sup>1</sup></b>			
Remove existing hangar door and construct hangar addition; reconfigure interior for Fuel Cell Hangar, storage and maintenance, and corrosion control shops.	18,985	0	FY 2015
<b>Project #4 (Option 2)– Demolition/Addition/Alteration to Hangar 253<sup>1</sup></b>			
Demolish building and rebuild double hangar with Hangar 254.	36,026	0	FY 2015
<b>Project #5–Demolition/Addition/Alteration to Hangar 254</b>			
Construct new tail addition and reconfigure interior for KC-46A.	18,530	0	FY 2015
<b>Project #6 – Alter Aircraft Taxiway</b>			
Construct a concrete taxiway (6,843 SF), an asphalt shoulder (4,074 SF), and upgrade concrete taxiway (828 SF).	11,745	10,917	FY 2015
<b>Project #7 – Demolition/Modify/Install Aprons and Hydrants</b>			
This project would reuse existing hydrants in the north and south loops; add interstitial monitoring and secondary containment; and relocate parking.	2,890	0	FY 2015
<b>Project #8 – Repave Quad Apron</b>			
Repave surfaces used to tow aircraft in and out of the hangar and fuel cell, but not the entire facility.	49,075	0	FY 2015
<b>Total</b>	<b>130,966</b>	<b>23,617</b>	

Notes: 1. Two options are possible for the modifications to these projects. Only one of these options would be implemented.  
2. The total construction footprint includes only the project option that has the greatest footprint of each of the options so as to represent the most conservative (highest amount) facility footprint given the multiple options possible.  
SF=square feet; FY = fiscal year



### *Alteration or Addition to Building 156 for Weapons System Trainer and Boom Operator Trainer*

The KC-46A beddown would require the construction of a new KC-46A Weapons System Trainer and Boom Operator Trainer to train flight crews. One of two options could occur under Alternative #3 to satisfy this requirement. Option 1 would remove the KC-135 Weapons System Trainer in Building 156 and reuse the main bay for the KC-46A Weapons System Trainer. In addition, under Option 1, a 750 SF addition to Building 156 would be constructed to house the KC-46A Boom Operator Trainer. Option 2 would leave the KC-135 Weapons System Trainer in Building 156 and construct an 11,600 SF addition to the new Squadron Operations Building, Building 264 (currently under construction), to house the Weapons System Trainer, the KC-46A Boom Operator Trainer, and supporting Computer Server Room.

### *Additions to Building 166 Refueler Parking Area*

Alteration of this facility is required to provide a facility large enough to house assigned R-11, R-12, and C-300 refueling vehicles. To accommodate refueling vehicles, covered parking spaces would be added, and a new driveway would be built (adjacent to Building 166). Following the construction, there would be an increase of approximately 1,100 SF of impervious surface as a result of this project.

### *Internal Renovations to Hangar 251*

The Mezzanine within Hangar 251 would be renovated for KC-46A administrative space and the hangar bay would be altered to accommodate the Fuselage Trainer and Deployment Processing Center. In addition, the utilities for aircraft power and potable water would be upgraded.

### *Addition to Hangar 253 and Hangar 254*

The hangar bays require enough space to use the support equipment such as stands and carts to perform KC-46A maintenance functions. The hangars would house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135, thus requiring slightly larger hangars. Hangar 254 and Hangar 253 require modifications to meet KC-46A requirements. One of two options could occur under Alternative #3 to satisfy these requirements.



Under Option 1, an 18,985 SF addition would be added to the hangar, while existing maintenance shops would be reused, and a 2-hour firewall would be added. A high-bay tail addition and door would be added to the south side of this hangar. Also, mid-bay areas for Wing Air Refueling Pod storage and maintenance with overhead cranes, and corrosion control would be built. Mezzanines would be renovated for administrative use. Under Option 2, both Hangar 253 and the hangar space in Hangar 254 would be demolished. A new 36,026 SF double hangar would be built incorporating the existing Hangar 253 shops in Hangar 254.

#### *Addition to Hangar 254*

The existing dormer would be demolished and a new 18,530 SF dormer would be added to the hangar to accommodate the KC-46A. The existing roofs would also be replaced. Excess space in the existing jet engine shop would be used to store aircraft support equipment. The existing maintenance shops would be reused.

#### *Alter Aircraft Taxiway*

Alteration of the existing taxiway would be required at Pease ANG to enable the KC-46A aircraft to access the maintenance hangars. The existing taxiway from the main apron to the hangar area is configured for towing of KC-135 aircraft to the existing hangars. Construction of tail additions combined with the larger dimensions of the KC-46A would not allow the existing taxiway to be reused as-is. In addition, the taxiways would need to be wide enough to support the turning radii of the KC-46A. Under Alternative #3, 828 SF of concrete taxiway would be upgraded, and 6,843 SF concrete taxiway and 4,074 SF asphalt shoulder would be constructed to the quad area to accommodate the aircraft. Following the construction, there would be an increase of approximately 10,917 SF of impervious surface as a result of this project.



*Hangar 253*



*Hangar 254*



*Taxiway Proposed for Modifications*

### *New Hydrants and Demolition of Existing Hydrants*

The beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. One of two options could occur under Alternative #3 to satisfy this requirement. Option 1 would reuse six of the seven existing hydrants in North Loop and would cap one hydrant under the proposed parking area. In the South Loop, interstitial monitoring and secondary containment would be added; only two hydrants would be used in this area. Under Option 2, the old piping would be demolished and new piping installed; valves and pits would be installed in Rows 4 and 5. Eight existing hydrant valve pits would be used. Approximately 2,890 SF of disturbance would occur as a result of the new hydrants and fuel lines.

### *Quad Apron*

This project would repave surfaces used to tow aircraft in and out of the hangar and fuel cell. The quad apron is currently degrading and is in need of renovations for KC-46A operations. Under Alternative #3, 49,075 SF of surface area used to tow aircraft in and out of the hangar and fuel cell would be repaved.

### 2.3.3.7 Personnel Changes

The 157 ARW currently is authorized 1,382 personnel (Table 2.3-18). Under Alternative #3, the KC-46A mission would add an additional 171 military positions to the authorized manning requirement (approximately a 12 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-18.

**Table 2.3-18. Comparison of Currently Authorized and Proposed 157 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	127	199	72
Active Guard and Reserve	120	120	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	283	326	43
Non-Dual Status (DoD civilians, Air Traffic Control)	9	9	0
<i>Subtotal</i>	<i>539</i>	<i>654</i>	<i>115</i>
<b>Part Time</b>			
Drill Status Guardsmen	843	899	56
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,382</b>	<b>1,553</b>	<b>171</b>
<b>Total Personnel On Base</b>	<b>1,099</b>	<b>1,227</b>	<b>128</b>

Note: 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

2. Some personnel work off-site but are assigned to the unit.

## **2.3.4 Alternative #4 – Pittsburgh Air National Guard Station**

### **2.3.4.1 Background**

Pittsburgh ANG, home of the 171<sup>st</sup> Air Refueling Wing (171 ARW) of the Pennsylvania Air National Guard (PA ANG), is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County (Figure 2.3-7). The 171 ARW installation is situated on the southeastern side of the Pittsburgh IAP, an international airport owned and operated by the Allegheny County Airport Authority (ACAA). The 171 ARW installation currently occupies approximately 179 acres in the southeastern corner of Pittsburgh IAP. The 171 ARW holds a lease with the Pittsburgh IAP with a termination date of 2050.



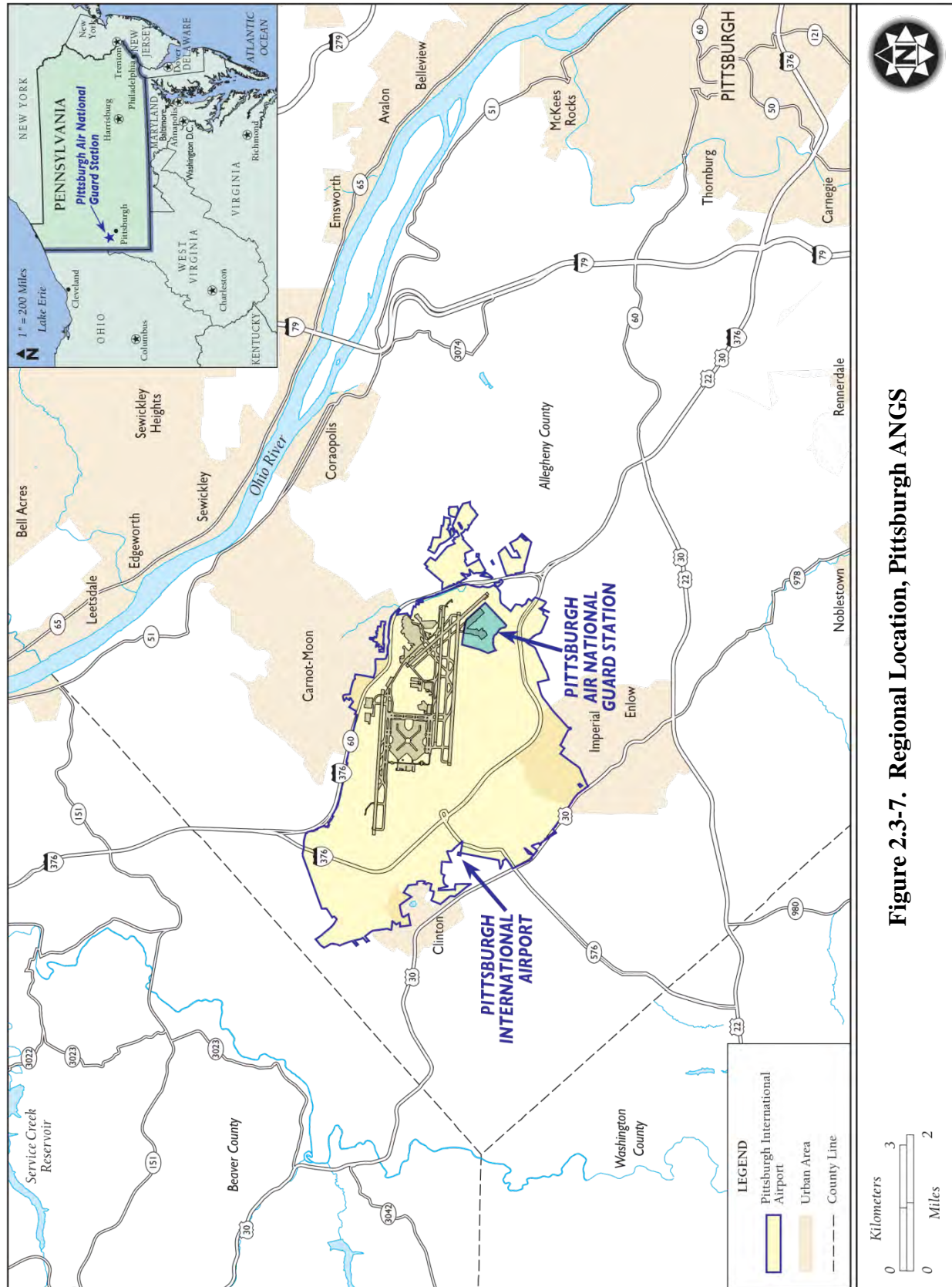
### **2.3.4.2 Mission**

The mission of the 171 ARW is to provide support for federal, state, and community interests by providing timely worldwide air refueling, airlift, and support forces; protecting life and property; and preserving peace, order, and public safety. The 171 ARW currently flies and maintains 16 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 171 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

### **2.3.4.3 Aircraft Conversion**

Under Alternative #4, the 171 ARW would convert from 16 KC-135 PAA and no KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Pittsburgh ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.





**Figure 2.3-7. Regional Location, Pittsburgh ANG**

## 2.3.4.4 Airfield Operations

Pittsburgh IAP has four runways. Runway 10R/28L is 11,500 feet long and 200 feet wide. Runway 10L/28R is 10,502 feet long and 150 feet wide. Runway 10C/28C is 10,774 feet long for takeoff and 9,708 feet long for landing and 150 feet wide. Runway 14/32 is 8,101 feet long and 150 feet wide (AirNav 2013b).

The 171 ARW currently flies 1,569 sorties annually. According to the unit's scheduling data and airport traffic counts, 926 were flown from Pittsburgh IAP, or 59 percent of the total annual sorties flown (171 ARW 2013a). The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 171 ARW flew 6,943 airfield operations with an average of 7.5 operations per sortie during 2012 (Table 2.3-19).

**Table 2.3-19. Current 171 ARW KC-135 Aircraft Operations at Pittsburgh IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-135	3,272	200	3,176	295	6,448	495	6,943

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

Source: 171 ARW 2013a.

Following the aircraft beddown under Alternative #4, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties, 59 percent of which would be performed at the home-station (Pittsburgh ANG). Thus, 1,186 sorties would be flown at Pittsburgh IAP annually under this alternative. This would be an increase of 27 percent over the baseline 926 sorties currently flown at Pittsburgh IAP (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Pittsburgh IAP under this alternative). Based on 1,186 annual home-station sorties and an average of 7.78 operations per sortie, there would be 9,226 annual home-station operations, or an additional 2,283 airfield operations annually at Pittsburgh IAP (Table 2.3-20). This would increase the average daily airfield operations from 19.0 to 25.3 (Table 2.3-21). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.4.1, *Noise*).

**Table 2.3-20. Proposed 171 ARW KC-46A Operations at Pittsburgh IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	4,287	326	4,275	338	8,562	664	9,226

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-21. Changes to 171 ARW Airfield Operations with Proposed KC-46A Aircraft**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
171 ARW	6,943 (19.0)	9,226 (25.3)	2,283 (32.9%)

#### 2.3.4.5 Airspace Operations

The 171 ARW conducts air refueling for both training and contingency missions for the receiver aircraft. Primary air refueling tracks used by the 171 ARW are described in Table 2.3-22. Under Alternative #4, there would be a slight change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will be using the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel), but the minutes in the airspace for each sortie, and the operational training conducted would not change in any of the airspace described.

#### 2.3.4.6 Construction Required

Under Alternative #4, 12 KC-46A PAA aircraft would be beddown at the 171 ARW installation at Pittsburgh ANG; the 171 ARW would also implement minor construction projects for that conversion (Table 2-3-23). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements would also be addressed to the extent practicable. Proposed facilities would be sited approximately as shown in Figure 2.3-8. The precise layout and design of proposed facilities is in the early planning stages, and therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

**Table 2.3-22. Current and Proposed Local Air Refueling Airspace Used by the 171 ARW<sup>1</sup>**

Airspace Unit Altitude <sup>2</sup> Floor and Ceiling	Current Aircraft Proposed Aircraft	Minutes in Airspace for Each Sortie	Average KIAS	ANNUAL SORTIE OPERATIONS	
				Current	Proposed
Duke MOA <sup>3</sup> ATCAA 8,000 feet –FL180 ATCAA FL180-As Assigned	KC-135 KC-46A	30	315	17	18
W105 <sup>4</sup> Surface-FL500	KC-135 KC-46A	45	315	45	54
W107 <sup>4</sup> Surface-Unlimited	KC-135 KC-46A	45	315	35	42
193WA TBD	KC-135 KC-46A	60	210	80	97
AR 777 FL210-FL280	KC-135 KC-46A	75	275	56	68
AR 109H/L FL250-310H FL190-230L	KC-135 KC-46A	45	275	41	49
AR 110 FL240-270	KC-135 KC-46A	50	260	21	25
AR 609 FL180-FL280	KC-135 KC-46A	60	300	25	30
AR 631 FL200-FL260	KC-135 KC-46A	60	265	30	36
AR 206H/L FL280-FL310H FL250-FL270L	KC-135 KC-46A	50	295	14	16
KIWI MOA <sup>3</sup> FL190-FL230	KC-135 KC-46A	60	315	20	24
AR 636 FL200-290	KC-135 KC-46A	60	300	16	19
AR 202 FL260-FL280	KC-135 KC-46A	55	265	29	35
AR 207 FL260-280	KC-135 KC-46A	75	265	37	45
AR 216 FL260-FL280	KC-135 KC-46A	75	265	33	39
AR220 FL190-FL220	KC-135 KC-46A	70	275	239	289
AR 633 FL180-FL230	KC-135 KC-46A	60	275	40	48
AR328 FL180-FL230	KC-135 KC-46A	60	275	20	24

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 171 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.”

2. FL Altitude is Mean Sea Level.

3. Military Operations Area (MOA) but no refuelings occur below 10,000 feet MSL.

4. W-Warning Area Floor is the Surface but no refuelings occur below 10,000 feet MSL.

KIAS = knots indicated airspeed; MOA = Military Operations Area; ATCAA = Air Traffic Control Assigned Airspace; FL = Flight Level

Source: 171 ARW 2013a.

**Table 2.3-23. Proposed 171 ARW Construction Projects at Pittsburgh IAP**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 – Addition to Hangar 302</b>			
This project would involve the addition of a 20,464 SF addition to the existing Maintenance Hangar 302 in order to provide an adequately sized hangar for the new KC-46A aircraft.	20,464	0	FY 2015
<b>Project #2 – Addition to Hangar 320</b>			
This project would involve the addition of a 19,180 SF addition to the existing Fuel Cell Hangar 320 in order to provide an adequately sized hangar for the new KC-46A aircraft.	19,180	0	FY 2015
<b>Project #3 – Internal Renovation to Hangar 301</b>			
This project would include internal renovations only in order to provide sufficient space to house the KC-46A Fuselage Trainer, the Weapons System Trainer, and the Boom Operator Trainer.	0	0	FY 2015
<b>Project #4 – Modifications to Existing Parking Ramp and Taxiway</b>			
This project would include the addition of 143,505 SF of concrete and asphalt to the existing parking ramp and taxiway that leads to the parking ramp.	143,505	88,529	FY 2015
<b>Project #5 – New Hydrants and Fuel Lines and Demolition of Existing Hydrants</b>			
This project would include the addition of eight new fuel hydrants as well as new fuel lines to these hydrants. Approximately 58,335 SF of disturbance would occur as a result of the new hydrants and fuel lines.	3,246	0	FY 2015
<b>Total</b>	<b>186,395</b>	<b>88,529</b>	

Notes: SF = square foot; FY = fiscal year



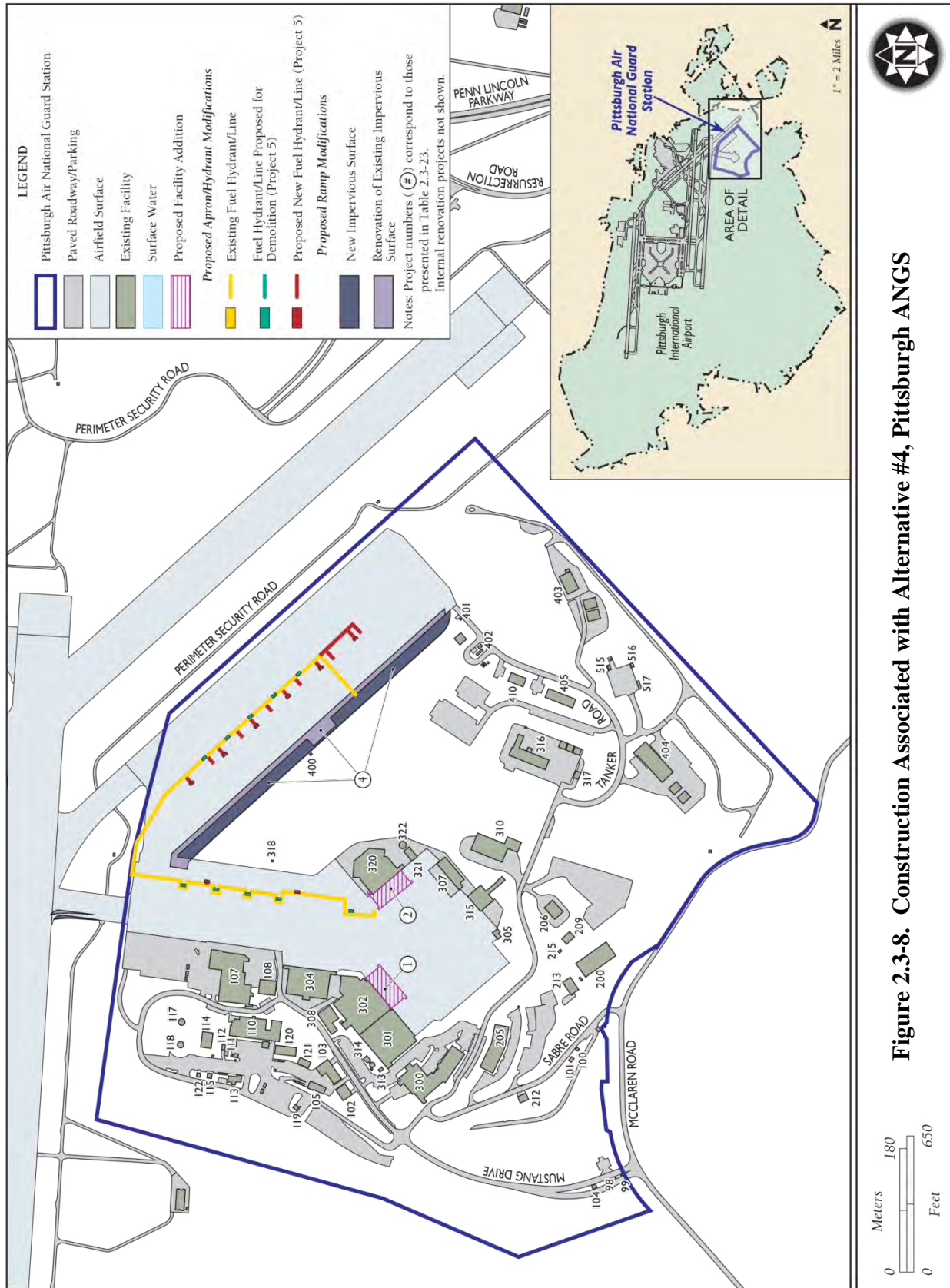


Figure 2.3-8. Construction Associated with Alternative #4, Pittsburgh ANG

Implementation of the KC-46A aircraft beddown would require the 171 ARW to ensure their installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. Although the Pittsburgh ANGS location was deemed to have an acceptable level of facilities to support this beddown, and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2, there remain some functional areas that require modification. Proposed construction includes an addition to Hangar 302, an addition to Hangar 320, internal renovations of Hangar 301, modification to existing ramp and taxiway, and addition and demolition of hydrants and fuel lines on the parking apron.

The projects described below would incorporate LEED and sustainable development concepts, so as to achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be rewarded with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

#### *Addition to Hangar 302*

A minimum of one Maintenance Hangar is required to support the maintenance and operations of KC-46A. Hangars provide an environmentally controlled area to perform maintenance. The hangar bays require enough space to use the support equipment such as stands and carts to perform maintenance functions. The hangars would house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 20,464 SF addition to Hangar 302 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar.



*Hangar 302*

### *Addition to Hangar 320*

A minimum of one Fuel Systems Maintenance Hangar is required to support the maintenance and operations of KC-46A. The Fuel Systems Maintenance Hangar provides space for covered aircraft maintenance, shop, and administrative functions, and contains utilities and safety systems required to perform fuel systems maintenance to include pressure checks and inspections. Aircraft hangar space is required for on-aircraft open fuel cell maintenance. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 19,180 SF addition to Hangar 320 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar.



*Hangar 320*

### *Internal Renovations to Hangar 301*

Internal renovations to Hangar 301 would be made in order to house the KC-46A Fuselage Trainer, the Weapons System Trainer, and the Boom Operator Trainer.

### *Modifications to Existing Parking Ramp and Taxiway*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. Additional concrete would need to be added to the parking ramp and taxiway at Pittsburgh IAP in order to increase the size of the parking ramp to accommodate the larger KC-46A aircraft. In addition, the taxiways would need to be wide enough to support the turning radii of the KC-46A. Therefore, under Alternative #4, the addition of 143,505 SF of concrete and asphalt would be added to the existing parking ramp and the taxiway that leads to the parking ramp. Following the construction, there would be an increase of approximately 88,529 SF of impervious surface as a result of this project.



*Area Adjacent to Taxiway that is Proposed to Receive Pavement Addition*

### *New Hydrants and Fuel Lines and Demolition of Existing Hydrants*

As stated above, the proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all



the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. Under Alternative #4, eight new fuel hydrants would be added to the existing parking ramp as well as new fuel lines to one of these hydrants. Approximately 3,246 SF of disturbance would occur as a result of the new hydrants and fuel lines.

#### 2.3.4.7 Personnel Changes

The 171 ARW currently is authorized 1,306 personnel (Table 2.3-24). Under Alternative #4, the KC-46A mission would add an additional 59 military positions to the authorized manning requirement (approximately a 5 percent increase in total personnel). Changes to the authorized personnel under this alternative are shown in Table 2.3-24.

**Table 2.3-24. Comparison of Currently Authorized and Proposed 171 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	101	101	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	292	328	36
Non-Dual Status (DoD civilians, Air Traffic Control)	0	0	0
<i>Subtotal</i>	393	628	235
<b>Part Time</b>			
Drill Status Guardsmen	913	737	-176
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,306</b>	<b>1,365</b>	<b>59</b>
<b>Total Personnel On Base</b>	<b>1,014</b>	<b>1,037</b>	<b>23</b>

Note: 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

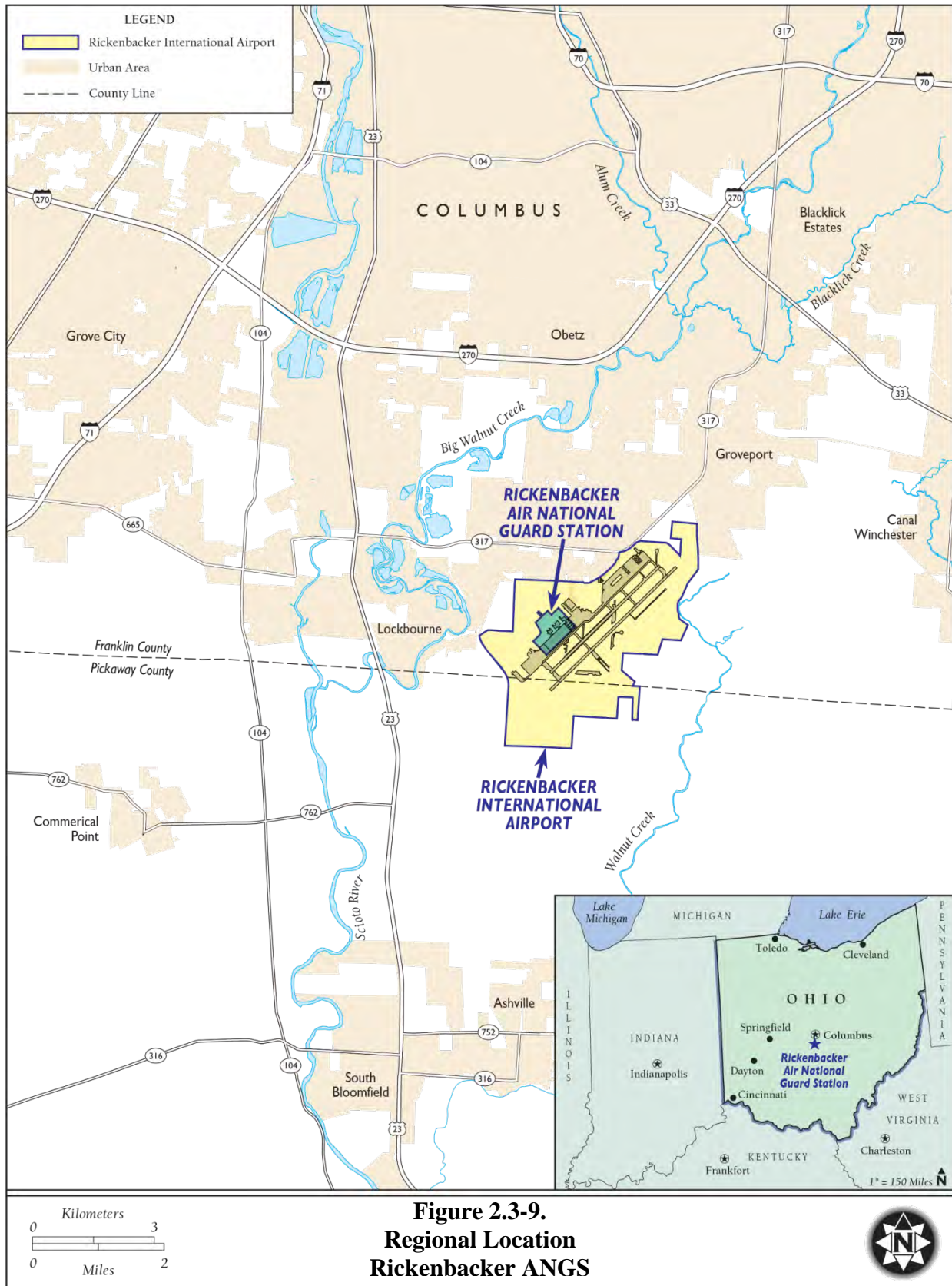
2. Some personnel work off-site but are assigned to the unit.

### 2.3.5 Alternative #5 – Rickenbacker Air National Guard Station

#### 2.3.5.1 Background

Rickenbacker ANG, home of the 121<sup>st</sup> Air Refueling Wing (121 ARW) of the Ohio Air National Guard (OH ANG), is located approximately 12 miles southeast of downtown Columbus, Ohio in Franklin County (Figure 2.3-9). The 121 ARW installation is situated on the west side of Rickenbacker IAP, an international airport operated by the Columbus Regional Airport Authority (CRAA). The 121 ARW holds a lease with the Rickenbacker IAP for the installation property with a termination date of 2061. The installation occupies approximately 170 acres, most of which are within the main cantonment area.





### 2.3.5.2 Mission

The mission of the 121 ARW is to provide support for federal, state, and community interests by providing timely worldwide air refueling, airlift, and support forces; protecting life and property; and preserving peace, order, and public safety. The 121 ARW currently flies and maintains 18 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 121 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

### 2.3.5.3 Aircraft Conversion

Under Alternative #5, the 121 ARW would convert from 18 KC-135 PAA and no KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Rickenbacker ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations, as necessary.

### 2.3.5.4 Airfield Operations

Rickenbacker IAP has two parallel runways spaced approximately 1,000 feet apart. Runway 05R/23L is 12,102 feet long and 200 feet wide and Runway 05L/23R is 11,902 feet long and 150 feet wide (AirNav 2013c).

In 2012, the 121 ARW flew 2,014 sorties. According to the unit's scheduling data and airport traffic counts, the unit flew 1,289 of these sorties from Rickenbacker IAP, or 64 percent of the total annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 121 ARW conducted 6,445 operations with an average of 5.0 operations per sortie at the airfield (Table 2.3-25).

**Table 2.3-25. Current 121 ARW KC-135 Operations at Rickenbacker IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-135	3,223	0	3,061	161 <sup>3</sup>	6,284	161	6,445

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

3. Night operations are limited due to Maintenance Union Agreement.

Source: 121 ARW 2013a.

Following the aircraft beddown under Alternative #5, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 annual sorties, 64 percent of which would be performed at the home-station (Rickenbacker ANG). Thus, it is expected that up to 1,286 sorties would be flown at Rickenbacker IAP annually under this alternative. This would be essentially the same as the baseline 1,289 sorties (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Rickenbacker IAP under this alternative). Based on 1,286 annual home-station sorties and an average of 5.33 operations per sortie, there would be 6,857 annual home-station operations, or an additional 412 airfield operations annually at Rickenbacker IAP (Table 2.3-26). This would increase the average daily airfield operations from 17.7 to 18.8 (Table 2.3-27). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.5.1, *Noise*).

**Table 2.3-26. Proposed 121 ARW KC-46A Aircraft Operations at Rickenbacker IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	3,424	0	3,157	276	6,581	276	6,857

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night – Between 10 p.m. and 7 a.m. for environmental night.  
 3. Night Operations are limited due to Maintenance Union Agreement.

**Table 2.3-27. Changes to 121 ARW Airfield Operations with Proposed KC-46A Aircraft**

Unit	Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)	Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)	Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)
121 ARW	6,445 (17.7)	6,857 (18.8)	412 (6.4%)

### 2.3.5.5 Airspace Operations

The 121 ARW conducts air refueling for both training and contingency missions for the receiver aircraft. Primary air refueling tracks used by the 121 ARW are described in Table 2.3-28. Under Alternative #5, there would be a slight change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the airspace for each sortie and the operational training conducted would not be expected to change in any of the airspace described.

**Table 2.3-28. Current and Proposed Local Air Refueling Airspace Used by the 121 ARW<sup>1</sup>**

Airspace Unit Altitude Floor and Ceiling	Current Aircraft Proposed Aircraft	Minutes in Airspace for Each Sortie	Average KIAS	ANNUAL SORTIE OPERATIONS	
				Current	Proposed
Buckeye MOA <sup>2</sup> ATCAA 6,000 feet MSL -FL500 <sup>3</sup>	KC-135 KC-46A	30	300	100	101
Steelhead MOA ATCAA FL240-FL260	KC-135 KC-46A	30	315	24	24
AR 202 FL260-FL280	KC-135 KC-46A	60	275	150	151
AR 207 FL260-280	KC-135 KC-46A	60	275	200	204
AR 216 FL260-FL280	KC-135 KC-46A	60	275	200	204
AR 220 FL190-FL220	KC-135 KC-46A	60	275	20	21
AR 315 <sup>2</sup> FL190-FL210	KC-135 KC-46A	60	275	300	305
AR 328 FL180-FL230	KC-135 KC-46A	60	275	50	51
AR 455 FL250-FL270	KC-135 KC-46A	60	275	100	101

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 121 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.

2. MOA Floor is 6,000 feet MSL but no refueling occurs below 10,000 feet MSL

3. 50,000 feet MSL (FL500)

KIAS = knots indicated airspeed; MOA = military operations area; ATCAA = Air Traffic Control Assigned Airspace; MSL = mean sea level; FL = Flight Level

Source: 121 ARW 2013b.

### 2.3.5.6 Construction Required

Under Alternative #5, 12 KC-46A PAA aircraft would be beddown at the 121 ARW installation at Rickenbacker ANG; the 121 ARW would also implement minor construction projects for that conversion (Table 2.3-29). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements would also be addressed to the extent practicable. Proposed facilities would be sited approximately as shown in Figure 2.3-10. The precise layout and design of proposed facilities is in the early planning stages, and therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

Implementation of the KC-46A aircraft beddown would require the 121 ARW to ensure their installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. Although the Rickenbacker ANG location was deemed to have an acceptable level of facilities to support this beddown, and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2, there remain some functional areas that require



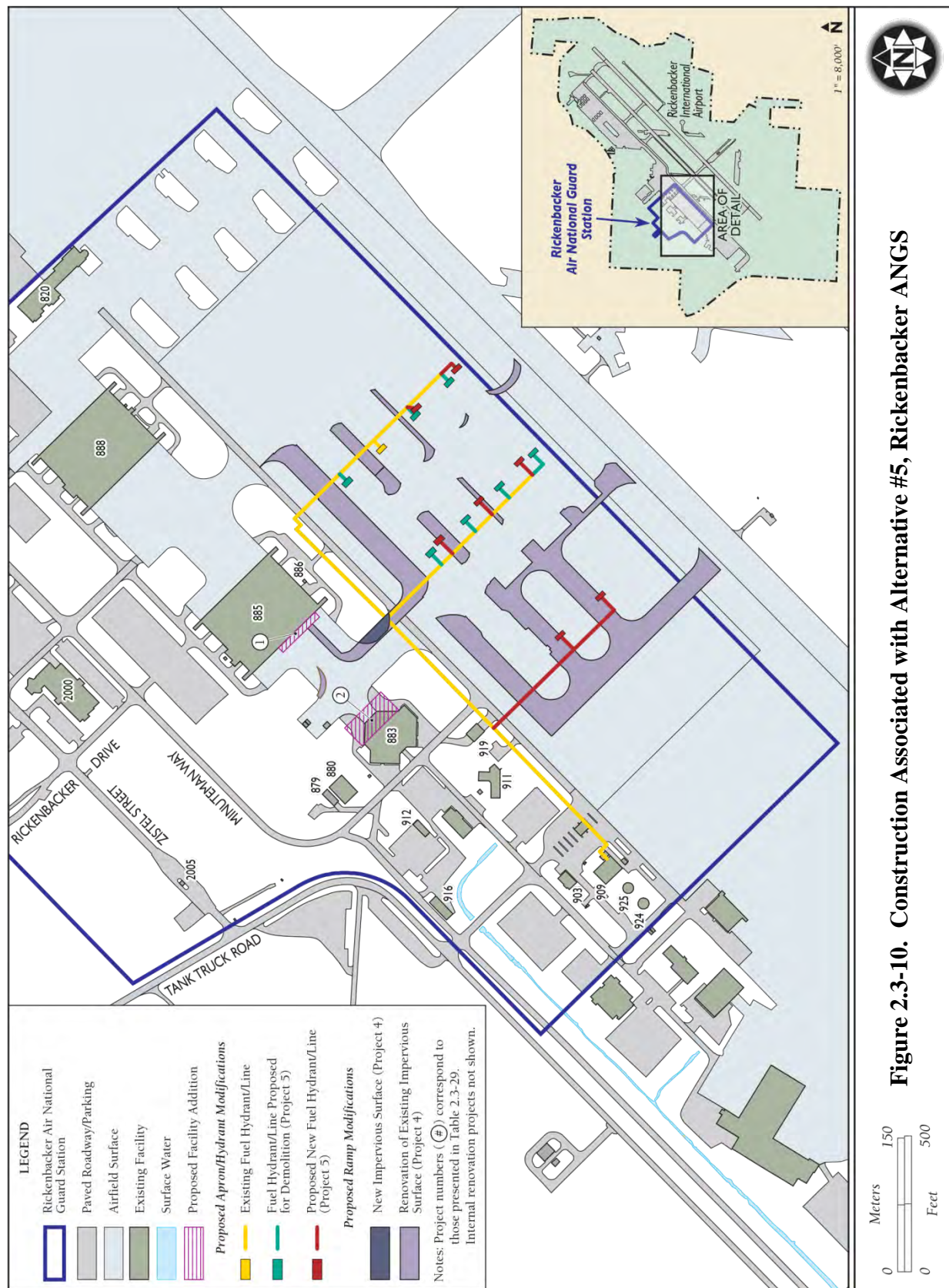
modification. Proposed construction includes additions and renovations to Hangar 885, an addition to Hangar 883, internal renovations of Hangar 888, modifications to the existing ramp and taxiway, and addition and demolition of hydrants and fuel lines on the parking apron.

The projects described below would incorporate LEED and sustainable development concepts, so as to achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be rewarded with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

**Table 2.3-29. Proposed 121 ARW Construction Projects at Rickenbacker IAP**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 – Addition and Modifications to Hangar 885</b>			
This project would involve a 4,000 SF addition to the existing Maintenance Hangar 885 in order to provide an adequately sized hangar for the new KC-46A aircraft, and modification of existing spaces to address changes in the Life Safety code. The Weapons System Trainer and the Boom Operator Trainer would also be installed within this facility.	4,000	0	FY 2015
<b>Project #2 – Addition to Hangar 883</b>			
This project would involve a 17,290 SF addition to the existing Fuel Cell Hangar 883 in order to provide an adequately sized hangar for the new KC-46A aircraft.	17,290	0	FY 2015
<b>Project #3 – Internal Renovation to Hangar 888</b>			
This project would include internal renovations only in order to provide sufficient space to house the KC-46A Fuselage Trainer.	0	0	FY 2015
<b>Project #4 – Modifications to Existing Parking Ramp and Taxilane</b>			
This project would include the renovation of 338,877 SF of concrete to the existing parking ramp and the taxilane that leads to the hangars from the parking ramp, as well as the end of this same parking ramp.	338,877	14,660	FY 2015
<b>Project #5 – New Hydrants and Fuel Lines and Demolition of Existing Hydrants</b>			
This project would include the addition of seven new fuel hydrants. New fuel lines would be added to two of these hydrants, while five would be re-piped from the existing spurs. In addition, demolition of seven hydrants would occur. Approximately 8,163 SF of disturbance would occur as a result of the new hydrants and fuel lines, while an additional 1,206 SF of disturbance would occur as a result of the demolition of existing hydrants and fuel lines.	8,163	0	FY 2015
<b>Total</b>	<b>368,330</b>	<b>14,660</b>	

Notes: SF = square foot; FY = fiscal year



**Figure 2.3-10. Construction Associated with Alternative #5, Rickenbacker ANG**



### *Addition and Modifications to Hangar 885*

A minimum of one Maintenance Hangar is required to support the maintenance and operations of KC-46A. Hangars provide an environmentally controlled area to perform maintenance. The hangar bays require enough space to use the support equipment such as stands and carts to perform maintenance functions. The hangars will house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 4,000 SF addition to Hangar 885 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar. Interior modifications of Hangar 885 are required to address changes to Life Safety Codes.



### *Addition to Hangar 883*

A minimum of one Fuel Systems Maintenance Hangar is required to support the maintenance and operations of KC-46A. The Fuel Systems Maintenance Hangar provides space for covered aircraft maintenance, shop, and administrative functions, and contains utilities and safety systems required to perform fuel systems maintenance to include pressure checks and inspections. Aircraft hangar space is required for on-aircraft open fuel cell maintenance. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135.



Therefore, a 17,290 SF addition to Hangar 885 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar.

### *Internal Renovations to Hangar 888*

Internal renovations to Hangar 888 would be made in order to house the KC-46A Fuselage Trainer.

### *Modifications to Existing Parking Ramp*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. The correct pavement thickness and strength of the parking ramps and taxiways is also important to avoid damage to the KC-46A and/or to the airfield pavement. During landing, the aircraft is light on fuel and the weight is transferred from the wings to the landing gear as the nose landing gear touches down and the aircraft decelerates. During takeoff the aircraft is heavy, but as the aircraft accelerates the weight is gradually



*Existing Parking Apron*

transferred from the wheels to the wings. Thus, the majority of the damage to the pavement occurs during loading and taxiing prior to departure. Additional concrete would need to be added to the parking ramp and taxilane at Rickenbacker IAP in order to satisfy the thickness and strength requirements for the KC-46A aircraft. In addition, the taxilanes would need to be wide enough to support the turning radii of the KC-46A. Therefore, under Alternative #5, the renovation of 338,877 SF of concrete would be added to the existing parking ramp and the taxilane that leads to the hangars from the parking ramp. Following the construction, there would be an increase of approximately 14,660 SF of impervious surface as a result of this project.

### *New Hydrants and Fuel Lines and Demolition of Existing Hydrants*

As stated above, the proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. Under Alternative #5, seven new fuel hydrants would be added to the existing parking ramp. New fuel lines will be added to two of these, while five will be re-piped from the existing spurs. In addition, demolition of seven hydrants would occur. Approximately 8,163 SF of disturbance would occur as a result of the new hydrants and fuel lines, while an additional 1,206 SF of disturbance would occur as a result of the demolition of existing hydrants and fuel lines. Approximately 1,198 SF of the total disturbance occurring would be temporary disturbance occurring on grassland areas; however, this area would remain a pervious surface following construction.

#### **2.3.5.7 Personnel Changes**

The 121 ARW currently is authorized 1,497 personnel. Under Alternative #5, the KC-46A mission would add an additional 197 military positions to the authorized manning requirement

(approximately a 13 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-30.

**Table 2.3-30. Comparison of Currently Authorized and Proposed 121 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	119	119	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	323	336	13
Non-Dual Status (DoD civilians, Air Traffic Control)	0	0	0
<i>Subtotal</i>	<i>442</i>	<i>654</i>	<i>212</i>
<b>Part Time</b>			
Drill Status Guardsmen	1,055	1,040	-15
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,497</b>	<b>1,694</b>	<b>197</b>
<b>Total Personnel On Base</b>	<b>1,174</b>	<b>1,358</b>	<b>184</b>

*Note:* 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

2. Some personnel work off-site but are assigned to the unit.

## 2.4 NO ACTION ALTERNATIVE

The CEQ regulation 40 CFR § 1502.14(d) specifically requires analysis of the “No Action” alternative in all NEPA documents. Under the No Action Alternative, the proposed aircraft beddown would not occur, and the NGB would not implement the components described above under the five Action Alternatives. There would be no change in based aircraft; use of the airfield at the proposed locations; or use of Special Use Airspace (SUA), construction, or personnel assigned to the KC-46A aircraft squadron. Under the No Action Alternative, the NGB would continue to conduct their current mission using the existing KC-135 aircraft with multiple configurations and crews that are not trained to accomplish every mission. This lack of standardized equipment and training throughout the fleet would continue to negatively impact the ability for KC-135 aircrews to support, on a large scale, multi-role missions or exploit new tactics and procedures. The continued use of the KC-135 aircraft would not meet the identified needs of the NGB or the USAF; however, this alternative is carried forward for analysis in this EIS per CEQ regulations, and as a baseline from which to compare the potential impacts of the Proposed Action and alternatives.

## 2.5 IDENTIFICATION OF PREFERRED ALTERNATIVE

The USAF has identified Pease ANG as the preferred alternative for the MOB 2 KC-46A beddown. The USAF selected Pease ANG based on an operational analysis, results of site surveys, and military judgment factors.

## 2.6 SUMMARY OF ANTICIPATED IMPACTS AMONG ALTERNATIVES

Comparing and differentiating among alternatives comprises a fundamental premise of NEPA. A summary of each alternative, including the No Action Alternative, is presented in

Table 2.6-1, which can then be used to compare the anticipated impacts of each alternative. A summary and comparison of the anticipated impacts associated with implementation of each alternative for this action is presented in Table 2.6-2.

**Table 2.6-1. Summary of Alternatives (Current/Proposed)**

	<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
Refueler Aircraft Type	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-135
Number of Refueler Aircraft (PAA)	12 / 12	8 / 12	8 / 12	16 / 12	18 / 12	Same as current
ARW Refueler Flying Hours	4,868 / 8,040	3,687 / 8,040	6,219 / 8,040	6,016 / 8,040	7,215 / 8,040	Same as current
Annual Sorties	1,478 / 2,010	1,112 / 2,010	1,382 / 2,010	1,569 / 2,010	2,014 / 2,010	Same as current
% Home-Station Operations	64% / 64%	75% / 75%	44% / 44%	59% / 59%	64% / 64%	Same as current
Home-Station Sorties	946 / 1,286	834 / 1,508	614 / 884	926 / 1,186	1,289 / 1,286	Same as current
Annual Airfield Operations Home-Station -- ANG	10,452 / 14,562	8,340 / 17,608	6,140 / 8,840	6,943 / 9,226	6,445 / 6,857	Same as current
Total Actual Airfield Operations (including ANG) based on 2012 FAA/Tower reports	24,630 / 28,740	62,686 / 71,875	37,410 / 40,110	139,217 / 141,500	39,436 / 39,848	Same as current
Total FAR Part 150 (Baseline 2006/2007) Approved Operations (including ANG)	N/A	N/A	N/A	321,436 <sup>1</sup> / 317,602	67,160 <sup>2</sup> / 60,877	Same as current
Construction -- new	Hangar modifications; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; new simulator building; ramp/taxiway modifications	Hangar modifications; building additions; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/ taxiway modifications	None
Construction -- renovations	Internal building renovations	Internal hangar renovations	Internal building renovations	Internal hangar renovations	Internal hangar renovations	None
Proposed Personnel Change (ANG and active duty)	+194	+287	+171	+59	+197	0

Notes: 1. 2006 Part 150 Study data

2. 2007 Part 150 Study data

ANGS = Air National Guard Station; JB MDL = Joint Base McGuire-Dix-Lakehurst; PAA = ;Primary Aerospace Vehicles Authorized; ARW = Air Refueling Wing; ANG = Air National Guard; FAR = Federal Aviation Regulations

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Noise</b>					
<p>Airfield operations would increase by 4,110 (39 percent increase in 190 ARW operations, 17 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 9,268 (111 percent increase in 108 WG operations, 15 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 2,700 (44 percent increase in 157 ARW operations, 7 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 3,834 (29 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2006]; and a 2 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 6,283 (48 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2007]; and a 1 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. The noise environment at each of the five alternative airfields would continue to be managed through their existing AICUZ or FAR Part 150 airfield compatibility programs. There would be no additional Noise impacts at any of the alternative installations under the No Action Alternative.</p>

Table 2.6-2. Summary of Impacts

Forbes ANG	JB MDL	Pease ANG	Pittsburgh ANG	Rickenbacker ANG	No Action Alternative
<b>Air Quality</b>					
Forbes ANG is located in an attainment area for all criteria pollutants. While there would be increases in operational criteria pollutant emissions, they would be below the PSD threshold, and would not be significant. Impacts from construction emissions and operational HAP emissions would be negligible.	The 108 WG installation is in a nonattainment area for O <sub>3</sub> (marginal nonattainment) and maintenance area for PM <sub>2.5</sub> and CO, and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO <sub>x</sub> , which would be above the <i>de minimis</i> threshold of 100 tpy. A conformity determination will be prepared. Impacts from construction emissions and operational HAP emissions are negligible.	The Pease ANG installation is in a maintenance area for O <sub>3</sub> , and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Pittsburgh ANG is located within a non-attainment area for PM <sub>2.5</sub> , a moderate nonattainment area for the 1997 8-hour O <sub>3</sub> standard, and is classified as a marginal nonattainment area for the 2008 8-hour O <sub>3</sub> standard, according to 40 CFR 81.339. The Pittsburgh ANG is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Rickenbacker ANG is located in a nonattainment area for the O <sub>3</sub> and PM <sub>2.5</sub> NAAQS. While there are increases in operational criteria pollutant emissions, they are below the PSD/ <i>de minimis</i> thresholds for all pollutants and are not significant. Impacts from construction emissions and operational HAP emissions are negligible.	Air Quality at each alternative airfield would remain as it currently is. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. Emissions at each of the alternative installations would continue to be in compliance with their respective SIPs. There would be no additional impacts to Air Quality at each alternative installation under the No Action Alternative.



**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Safety</b>					
There would be a 39 percent increase in actual 190 ARW airfield operations (17 percent increase in total airfield operations) at Forbes Field Airport with commensurate increase in mishap and BASH potential.	There would be a 111 percent increase in actual 108 WG airfield operations (15 percent increase in total airfield operations) at JB MDL with a commensurate increase in mishap and BASH potential.	There would be a 44 percent increase in actual 157 ARW airfield operations (7 percent increase in total airfield operations) at Portsmouth IAP with a commensurate increase in mishap and BASH potential.	There would be a 33 percent increase in actual 2012 171 ARW airfield operations (2 percent increase in total airfield operations) at Pittsburgh IAP with a commensurate increase in mishap and BASH potential.	There would be a 6 percent increase over the actual 2012 121 ARW airfield operations (1 percent increase in total airfield operations) at Rickenbacker IAP with a commensurate increase in mishap and BASH potential.	Both ground and flight safety at each alternative airfield would remain as they currently are. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Safety under the No Action Alternative.
Construction activities would involve no unusual or extraordinary techniques. During construction, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.					
<b>Soils and Water</b>					
There would be approximately 5.9 acres of temporary soil disturbance and no new impervious surface as a result of the proposed construction.	There would be approximately 4.7 acres of temporary soil disturbance and 2.4 acres of new impervious surface as a result of the proposed construction.	There would be approximately 3.0 acres of temporary soil disturbance and 0.5 acres of new impervious surface as a result of the proposed construction.	There would be approximately 4.3 acres of temporary soil disturbance and 2.0 acres of new impervious surface as a result of the proposed construction.	There would be approximately 8.5 acres of temporary soil disturbance and 0.3 acres of new impervious surface as a result of the proposed construction.	Soils and Water Resources at each alternative airfield would remain as they currently are. There would be no additional impacts to Soils and Water Resources as a result of the No Action alternative.
To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.		To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore, the Farmland Protection Policy Act does not apply to this alternative. As a result, impacts to soil and water resources would be negligible.			

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Biological Resources</b>					
<p>No impacts to vegetation and wetlands.</p> <p>Impacts to wildlife species from operational noise would be imperceptibly beneficial due to the slight decrease in noise.</p> <p>39 percent increase in 190 ARW (17 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to wildlife due to construction would be negligible.</p> <p>No special status species or critical habitat is known to occur on Forbes Field Airport; therefore, there would be no impacts to these species.</p>	<p>Impacts to vegetation would be minor.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>111 percent increase in 108 WG (15 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed species or critical habitat is known to occur on McGuire Field.</p> <p>Six state listed species are known to occur on McGuire Field. There would be no impacts to federally listed and impacts to state listed species would be minor.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>44 percent increase in 157 ARW (7 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Portsmouth IAP; therefore, there would be no impacts to federally listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No significant impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 33 percent increase in 171 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed or critical habitat is known to occur on Pittsburgh IAP; therefore, there would be no impacts to federally listed species.</p> <p>There would be no impacts to state listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 6 percent increase in 121 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Rickenbacker IAP; therefore, there would be no impacts to federally listed species.</p>	<p>There would be no change to Biological Resources under this alternative.</p> <p>There would be no additional impacts to Biological Resources as a result of the No Action Alternative.</p>

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Cultural Resources</b>					
Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. Minor interior modifications to Building 679 would not affect the NRHP-eligibility of the building. The Kansas SHPO has concurred with these findings. The installation has been intensively surveyed and no known traditional resources are known to occur. Two responses have been received from the Kaw Nation and the Wichita and Affiliated Tribes stating that they have no objection to the Proposed Action. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts	Construction activities associated with this alternative would be primarily limited to the developed areas of the installation in the areas of the aircraft hangars and airfield pavements. A small amount of construction (0.15 acre) would occur in forested area near this developed area. Based on previous archaeological surveys at McGuire Field, the area of proposed construction does not contain any known NRHP-eligible sites and is considered to have a low potential for containing buried materials. The New Jersey SHPO has concurred with these findings. No traditional resources have been identified. Responses from the Delaware Tribe of Indians and the Delaware Nation stated that their review indicated no religious or culturally significant sites in the area. SHPO consultation for this EIS has provided concurrence that no historic properties would be	Based on previous archaeological surveys on the installation, the area of proposed construction does not contain any known NRHP-eligible sites or traditional resources. Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The New Hampshire SHPO has concurred with these findings. The Penobscot Indian Nation is the only federally-recognized tribal entity affiliated with Pease ANG, and has responded stating that they have no issues with the Proposed Action. No impacts to cultural impacts would be expected to occur.	The installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the Pittsburgh ANG. Construction activities associated with this alternative are limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements and all impacts would be negligible. Correspondence has been received from all tribes consulted including the Seneca Nation of Indians, the Cayuga Nation of New York, the Tonowanda Band of Seneca, Tuscarora Nation of New York, and the Onondaga Nation of New York stating that they have no objection to the Proposed Action	Construction activities at Rickenbacker ANG would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The installation has been intensively surveyed for cultural resources and no traditional cultural resources are known to exist in the area. The one significant archaeological resource that is located within the installation is not within the proposed construction areas and would not be impacted. Two NRHP-eligible hangars (883 and 885) could be adversely impacted by construction under this alternative. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, additional consultation would be conducted to minimize and mitigate	Under the No Action Alternative, Cultural Resources at each alternative installation would remain as they currently are. None of the proposed facility construction/renovations would occur at any of the installations, and thus, there would be no potential impacts to facilities that are eligible for listing on the NRHP. There would be no surface disturbance from construction activities, and thus no potential to impact unknown archaeological resources. There would be no additional impacts to Cultural Resources as a result of the No Action Alternative.

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Forbes ANG is now complete.	affected under the proposed action.			adverse effects to these buildings. Correspondence has been received from the Peoria Tribe of Indians, the Pokagon Band of Potawatomi Indians, the Turtle Mountain Band of Chippewa Indians of North Dakota, the Delaware Nation, and the Shawnee Tribe who indicated that they had no objection to the proposed project. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Rickenbacker ANG is now complete.	
<b>Land Use</b>					
Total annual airfield operations would increase by 4,110 (17 percent).	Total annual airfield operations would increase by 9,268 (15 percent).	Total annual airfield operations would increase by 2,700 (44 percent).	Airfield operations would decrease by 3,834 (29 percent decrease) from the currently	The number of airfield operations would decrease by 6,283 (48 percent decrease) from the	Land Use at each alternative airfield would remain as it currently is. Each of the five installations would retain the

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres (55 acres off airport-controlled property). Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would be compatible with current land use and zoning designations and would result in imperceptibly beneficial impacts by reducing the off-airport areas currently exposed to a DNL between 65 dB and 70 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour off DoD-controlled property would increase by 419 acres. An additional 8 acres of residential use areas would be exposed to greater than 65 dB DNL.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in minor adverse impacts due to an increase in off-airport areas (including residential areas) exposed to a DNL between 65 dB and 75 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in negligible impacts due to an increase in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>published FAR Part 150 Noise Compatibility Program (2006), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>currently published FAR Part 150 Noise Compatibility Program (2007), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-controlled property that lie within the 65 dB contour.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Land Use under the No Action Alternative at any of the alternative locations.</p>

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Infrastructure and Transportation</b>					
Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increased demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.					Infrastructure and Transportation at each alternative installation would remain as they currently are. There would be no change to the based personnel at any of the alternative locations. There would be no increase in use of various utilities or roadway systems under this alternative. There would be no additional impacts under the No Action Alternative.

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Hazardous Materials and Waste</b>					
There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	One of the ERP Sites, SS-39, overlaps with a portion of the existing fuel hydrants that would be capped, as well as the proposed addition to Hangar 3336. Remedial investigation is on-going with this site. It is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations. If contaminated media were encountered during the course of site preparation or site development, work would cease until 108 WG Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 171 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media are encountered during the course of site preparation or site development, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	<p>Hazardous Materials and Wastes at each alternative installation would remain as described in the baseline section for each alternative location. The benefit of eliminating ozone depleting substances with the KC-46A would not be realized.</p> <p>The throughput and management of hazardous materials and wastes would not change from baseline conditions.</p> <p>There would be no additional impacts to Hazardous Materials and Wastes under the No Action Alternative.</p>



**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
There would not be an increased risk of hazardous waste releases or exposure from this alternative. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations.					
<b>Socioeconomics</b>					
Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.					<p>Socioeconomics at each alternative installation would remain as described in the baseline section for each alternative. The minor economic benefit of additional based personnel and construction activity would not occur at any of the alternative installations.</p> <p>There would be no additional impacts to Socioeconomics under the No Action Alternative.</p>

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Environmental Justice and the Protection of Children</b>					
<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Forbes Field Airport exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>The percentage of minority and low-income persons affected would remain approximately the same as baseline.</p> <p>There would be no disproportionate impacts to minority or low-income populations. The child development center that is currently under the 65 dB contour would be located under the 70 dB contour. There would be no special health or safety risks to children.</p>	<p>There are no residential areas within the noise contours. No additional schools would be located within the vicinity of Portsmouth IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Pittsburgh IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>Under the No Action Alternative, Environmental Justice and the Protection of Children at each alternative installation would remain as described in the baseline section for each alternative. There were no disproportionate impacts to low-income, minority, or children identified under any of the action alternatives. There would be no additional impacts as a result of the No Action Alternative.</p>

*Notes:* 190 ARW = 190<sup>th</sup> Air Refueling Wing; dB = decibel; DNL = Day-Night Average Sound Level; DoD = Department of Defense; 108 WG = 108<sup>th</sup> Wing; 157 ARW = 157<sup>th</sup> Air Refueling Wing; FAR = Federal Aviation Regulations; AICUZ = Air Installation Compatible Use Zone; ANG = Air National Guard Station; PSD = Prevention of Significant Deterioration; HAP = hazardous air pollutant; O<sub>3</sub> = ozone; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; tpy = tons per year; CFR = Code of Federal Regulations; SIP = State Implementation Plan; BASH = Bird/Wildlife Aircraft Strike Hazard; JB MDL = Joint Base McGuire-Dix-Lakehurst; IAP = International Airport; 171 ARW = 171<sup>st</sup> Air Refueling Wing; 121 ARW = 121<sup>st</sup> Air Refueling Wing; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office; ERP = Environmental Restoration Program; LBP = lead-based paint; ACM = asbestos-containing material; USAF = United States Air Force

## 2.7 MITIGATION

Mitigation measures avoid, minimize, remediate, or compensate for environmental impacts. CEQ regulations (40 CFR 1508.20) define mitigation to include the following:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action, and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

Avoiding, minimizing, or reducing potential impacts has been a priority guiding the development of the KC-46A alternatives and the proposed aircraft operations associated with each. Measures to minimize impacts are designed into the alternatives; applied to construction, operation, or maintenance involved in the action; or implemented as compensatory measures.

Depending on which base is eventually selected to host the MOB 2 KC-46A beddown, there are potential mitigation actions that will be required. These mitigation actions would be carried forward in implementing the selected alternative. Listed below are the potential mitigations that could be required at JB MDL and Rickenbacker ANG. The proponent of the action is responsible for ensuring that mitigations are carried forward. No mitigation actions have been identified for Forbes ANG, Pease ANG, and Pittsburgh ANG.

If JB MDL is selected to host the MOB 2 KC-46A beddown, mitigation for air quality would be required. The 108 WG installation is in a nonattainment area for O<sub>3</sub> (marginal nonattainment), and maintenance area for CO and PM<sub>2.5</sub>, and is therefore subject to *de minimis* thresholds (see Section 4.2.2 and Appendix F). Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO<sub>x</sub>, which would be above the *de minimis* threshold of 100 tpy. If JB MDL is selected to host the MOB 2 KC-46A beddown, a conformity determination must be completed, demonstrating compliance with the SIP, prior to signature of the ROD.

If Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, mitigation for adverse impacts to cultural resources could be required (see Section 4.5.6). Two of the hangars (885 and 888) proposed for additions, modifications, and renovations are eligible to the NRHP. The Ohio SHPO concurred with the eligibility determination. Hangar 885 would have an addition and renovations inside to house the new aircraft and support facilities. Because these renovations

would alter a structure that is considered eligible for the NRHP, the construction would have an adverse effect on a historic property. Modification to Hangar 888 would all be interior; however, they could have an adverse effect to this NRHP-eligible resource. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, further consultation would be conducted to minimize and mitigate adverse effects (see Appendix B, Section B3).

Following signature of the ROD, a Mitigation Plan will be prepared in accordance with 32 CFR 989.22(d). The Mitigation Plan will address specific mitigations identified for the selected alternative and agreed to during the environmental impact analysis process.

## CHAPTER 3 EXISTING CONDITIONS

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This section describes the natural and human environment that would be affected by implementation of the various alternatives described in Chapter 2. In describing the affected environment, a framework for understanding the potential direct, indirect, and cumulative effects of each alternative, including the No Action Alternative is provided.

As directed by guidelines contained in NEPA, CEQ regulations, and 32 CFR 989, *Environmental Impact Analysis Process*, the description of the affected environment focuses only on those resource areas potentially subject to impacts and should be commensurate with the anticipated level of environmental impact.

The affected environment is described for 11 resource topics: Noise, Air Quality, Safety, Soils and Water, Biological Resources, Cultural Resources, Land Use, Infrastructure and Transportation, Hazardous Materials and Waste, Socioeconomics, and Environmental Justice and the Protection of Children. The following sections reference Appendix A, which presents an introduction that defines each of the resources addressed in the section, summarizes applicable laws and regulations that apply to all installations, defines key terms as necessary, and describes the general ROI within which the effects from implementation of the various alternatives are anticipated to occur. The ROI varies from resource to resource, but in general, effects from the proposed activities are expected to be concentrated around each of the alternative installations. A more specific ROI for each installation/resource is described within each Chapter 3 section that follows, as are any local/regional regulations.

### 3.1 FORBES AIR NATIONAL GUARD STATION

Forbes ANG, home of the 190 ARW of KS ANG, is located approximately 5 miles south of Topeka in Shawnee County, Kansas. The 190 ARW base is situated on the northwest side of Forbes Field Airport, a municipal airport owned and operated by MTAA.

#### 3.1.1 Noise

To evaluate noise impacts in the vicinity of a military installation located within a commercial airport with a published Federal Aviation Regulations (FAR) Part 150 Airport Noise Compatibility Study, the USAF allows for use of the Federal Aviation Administration's (FAA's) Integrated Noise Model (INM) to generate DNL noise contours; however, if the primary noise generator are military aircraft, NOISEMAP may also be used. For this noise analysis, the USAF generated DNL noise files reflecting 2012 airport operations using NOISEMAP, a computer program used to model noise exposure in the vicinity of military airfields. For commercial

airfields, the most current and approved FAR Part 150 noise files were used for the baseline conditions and airfield operations and for noise impacts, these baselines were used for analysis. For other resource areas, the most current 2012 FAA/airport airfield operational data was used. For more detailed information on the noise modeling methods, see Appendix A, Section A.1.2.

### 3.1.1.1 Baseline Operations

In 1984, the MTAA published a noise study in support of the 1984 Airport Master Plan Update (Johnson 2013) and represents 1982 operational levels (Forbes Field Airport 1984). Due to the age of the data, and because the military aircraft (KC-135 and Army National Guard HH-60's) are the prominent aircraft based at Forbes Field Airport, the USAF completed a new study to estimate baseline noise exposure using the NOISEMAP computer program. The new study was completed to reflect 2012 airport operations and is used as the baseline for this analysis.

Based on aircraft operations data validated in May 2013, approximately 24,630 total aircraft operations occurred at Forbes Field Airport during the 12-month period ending December 2012 (Forbes ANGS 2013). An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. Table 3.1.1-1 summarizes the frequency of aircraft operations for Forbes Field Airport based on information provided by base staff, flying organizations, and air traffic control personnel. The majority of aircraft traffic includes air cargo, commercial regional jets (air taxi), and larger commercial aircraft and other based military aircraft, along with based ANG KC-135 aircraft. Although the number of aircraft operations at an installation varies from day to day, for Forbes Field Airport, operations were calculated for an average busy day for military aircraft and an average annual day (AAD) for civilian aircraft. Yearly operations were averaged over the number of flying days flown (260 days) for military aircraft and across all 365 days of the year for civilian aircraft. Table 3.1.1-1 reflects a total of approximately 79 total aircraft operations on an AAD (10,452 divided by 260 days plus 14,178 divided by 365 days) flown at Forbes Field Airport. Approximately 8 percent of the total operations at Forbes Field Airport occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.1.1-1. Current Forbes Field Airport Annual Aircraft Operations**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-135	4,541	685	4,390	836	8,931	1,521	10,452
Other Aircraft <sup>3</sup>	6,848	241	6,848	241	13,696	482	14,178
<b>Total</b>	<b>11,389</b>	<b>926</b>	<b>11,238</b>	<b>1,077</b>	<b>22,627</b>	<b>2,003</b>	<b>24,630</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night – Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: L-1011, MD-80, Lear 35, and HH-60.

Source: Forbes ANGS 2013.

Using the 2012 baseline data, the 190 ARW KC-135 aircraft flew a total of 10,452 annual airfield operations, or an average of 40 airfield operations a day. Approximately 15 percent of the total KC-135 operations occur during environmental night. Approximately 42 percent of total operations at Forbes Field Airport are accomplished by the 190 ARW KC-135 aircraft.

### 3.1.1.2 Runway and Flight Profiles

Forbes Field Airport aircraft use straight out departures, straight in approaches, Instrument Flight Rule (IFR) or radar closed patterns, and Visual Flight Rule (VFR) closed patterns as the basic flight patterns for training, local arrival, and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise*.

### 3.1.1.3 Existing Noise Environment

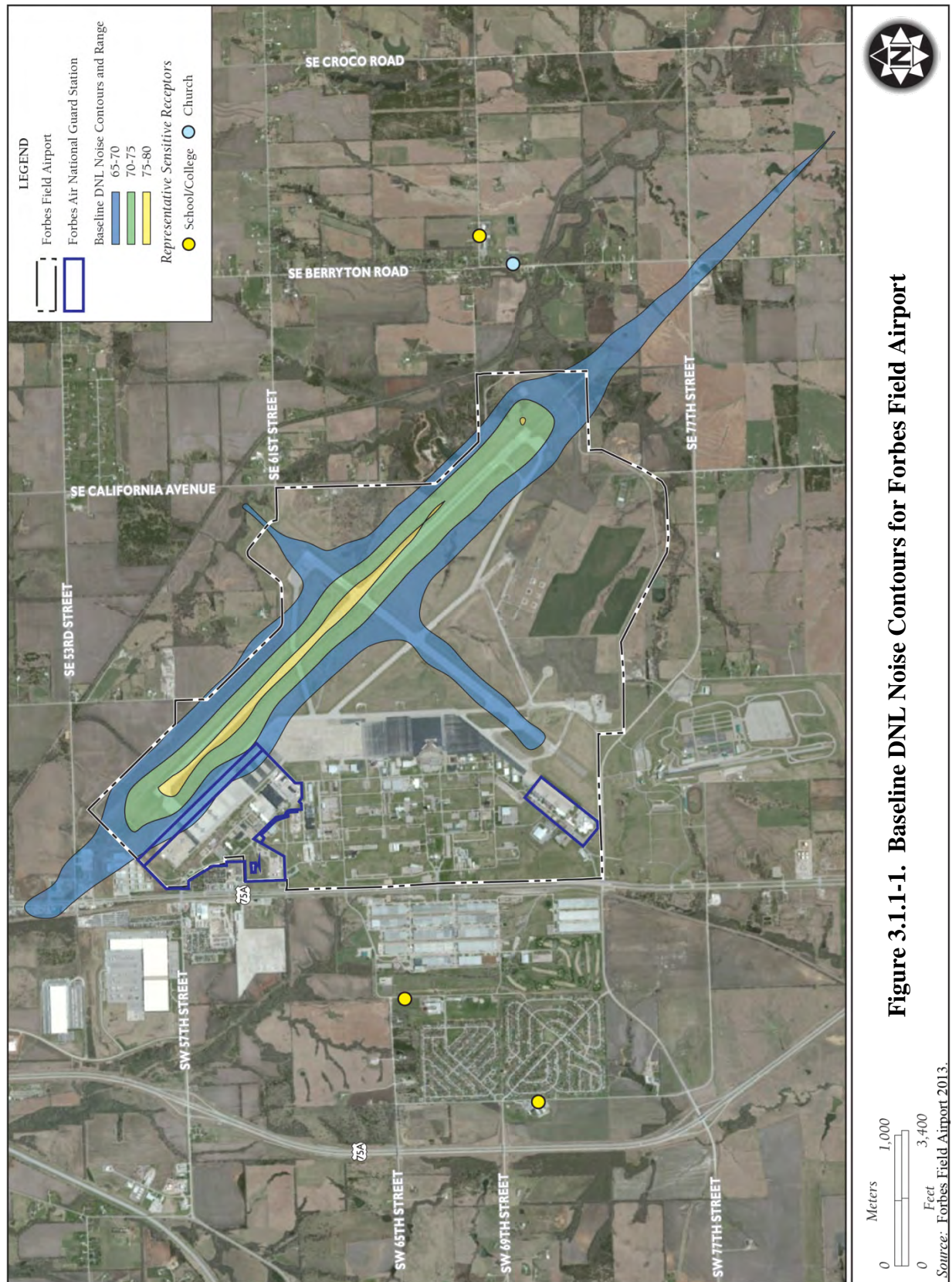
Noise contours developed for the baseline conditions at Forbes Field Airport are shown in Figure 3.1.1-1. The acreage within each DNL contour on and off Forbes Field Airport property is shown in Table 3.1.1-2 for the baseline condition. Approximately 971 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.1.7, *Land Use*.

**Table 3.1.1-2. Acres within Baseline Noise Contours, Forbes Field Airport**

<i>Noise Level (dB)</i>	<i>On-Airport (acres)</i>	<i>Off-Airport (acres)</i>	<i>Total (acres)</i>
65-70	448	165	613
70-75	308	0	308
75-80	50	0	50
80-85	0	0	0
Greater than 85	0	0	0
<b>Total</b>	<b>806</b>	<b>165</b>	<b>971</b>

*Note:* dB = decibel





**Figure 3.1.1-1. Baseline DNL Noise Contours for Forbes Field Airport**

### *Potential Hearing Loss*

There is no property off the Forbes Field Airport that falls within the baseline 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### 3.1.1.4 Forbes Field Airport Noise Abatement Procedures

Forbes Field Airport has no published noise abatement procedures. The 117<sup>th</sup> Air Refueling Squadron (117 ARS) (a squadron of the 190 ARW) has one noise abatement procedure published in their In-Flight Guide (117 ARS 2011) that requires pilots to avoid overflight of a housing area located 2 nautical miles (nm) west of Runway 13. This published procedure minimizes flying activities of the 117 ARS that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations.

#### 3.1.1.5 Forbes Air National Guard Station Noise Complaint Procedures

Currently, noise complaints are handled through the MTAA. There have been no recent noise complaints (Johnson 2013).

### **3.1.2 Air Quality**

#### 3.1.2.1 Regulatory Setting

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The Kansas Department of Health and Environment Bureau of Air is the agency responsible for the regulation of air quality within the state of Kansas. The state of Kansas regulates air quality through the Kansas Air Quality Act, Section 65.3001 through 65.3030 of the Kansas Air Quality Statutes, and the Kansas Air Quality Regulations, Section 28, Article 19 of the Kansas Administrative Regulations. The state of Kansas has not adopted separate ambient air quality standards from the NAAQS. The NAAQS are summarized in Table 3.1.2-1.

**Table 3.1.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	NATIONAL STANDARDS <sup>a</sup>	
		<i>Primary</i> <sup>b,c</sup>	<i>Secondary</i> <sup>b,d</sup>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary
	30-Day Average	—	—

Notes: a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

Source: USEPA 2012.

Forbes ANGS, home of the 190 ARW of the KS ANG, is located on Forbes Field Airport, approximately 5 miles south of Topeka in Shawnee County, Kansas. The U.S. Environmental Protection Agency (USEPA) has classified the state of Kansas as an attainment/unclassified area for all criteria pollutants. The Proposed Action is therefore not subject to the requirements of Section 176(c) of the Clean Air Act (CAA), as articulated in the USEPA General Conformity Rule.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas

used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

### 3.1.2.2 Climate and Meteorology

The state of Kansas has a continental climate, meaning that it is not influenced by any major bodies of water. Summers are warm with the majority of annual precipitation occurring from April through September. Winters tend to be cold with an occasional mild period and moderate snowfall amounts. Much of the severe weather for which Kansas is often noted is due to weather patterns that bring cold dry air into contact with warm moist air over the state. There are many severe thunderstorms each year with an average of 111 tornadoes per year in the state (High Plains Regional Climate Center 2013).

Annual average temperatures in Topeka range from an average minimum temperature of 43.5 degrees Fahrenheit (°F) to an average maximum temperature of 65.8°F, with a yearly average of 54.6°F (Western Regional Climate Center 2013). January is the coldest month, with average minimum temperatures of 17.6°F. July is the hottest month in the area, with average maximum temperatures reaching 89.7°F. In the Topeka area, average annual precipitation (1948-2012) was 34.77 inches (High Plains Regional Climate Center 2013).

The prevailing wind direction for the state of Kansas is from the south. The average annual wind speed for Topeka is 10.4 miles per hour (High Plains Regional Climate Center 2013).

### 3.1.2.3 Regional and Local Air Pollutant Sources

The area surrounding Forbes Field Airport is mainly used for agriculture, with some development in the surrounding areas to the north, west, and south. The USEPA's National Emissions Inventory includes data for the year 2008 for Shawnee County. Table 3.1.2-2 summarizes the regional emissions (stationary, area-wide sources, and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.1.2-2. Regional Emissions for Shawnee County, Kansas**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	2,143	2,009	3,853	6,036	635	342
Area-Wide Source	3,866	7,543	410	34	17,149	2,117
Mobile Sources	31,885	6,840	2,902	77	348	280
<b>Total</b>	<b>37,894</b>	<b>16,392</b>	<b>7,165</b>	<b>6,147</b>	<b>18,132</b>	<b>2,739</b>

*Notes:* Numbers may not add precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.1.2.4 Baseline Air Quality

Representative background air monitoring data for the 190 ARW for the period 2008-2012 are shown in Table 3.1.2-3. The closest monitoring station to the Forbes Field Airport is located in Topeka, and monitors ozone (O<sub>3</sub>), particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>), and particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>). The closest monitoring station to the Forbes Field Airport that monitors carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>) is located in Kansas City. Values measured at the Kansas City monitoring station are likely to be conservative because Kansas City is more developed than the Forbes Field Airport area.

As shown in Table 3.1.2-3, some O<sub>3</sub> exceedances have been measured in Topeka during the recent 5-year period; however, the area has not been designated as a nonattainment area for O<sub>3</sub>. One exceedance of the 24-hour PM<sub>2.5</sub> standard was measured in 2011; however, that exceedance was attributed to an exceptional event. The 1-hour SO<sub>2</sub> standard was exceeded in 2008 and 2010; however, the 99<sup>th</sup> percentile did not exceed the standard. The data show that the area did not experience violations of all other NAAQS.



**Table 3.1.2-3. Ambient Air Monitoring Data for Topeka and Kansas City, Kansas**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.068	0.068	0.082	0.084	0.085
Days above federal standard (0.075 ppm)	0	0	2	4	8
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	26.6	35.6	29.1	40.8	35.2
Days above federal standard (35 µg/m <sup>3</sup> )	0	0	0	1	0
Annual Average value (µg/m <sup>3</sup> )	10	8.7	9	9.9	8.6
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	51	78	72	76	67
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	2.2	2.4	2.1	2.3	3.3
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.8	1.6	1.6	1.6	2.0
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.066	0.062	0.077	0.061	0.064
98 <sup>th</sup> Percentile (ppm)	0.062	0.045	0.054	0.053	0.052
Days above federal standard (0.100 ppm)	0	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.090	0.050	0.081	0.065	0.071
99 <sup>th</sup> Percentile (ppm)	0.043	0.043	0.049	0.048	0.050
Days above federal standard (0.075 ppm) <sup>1</sup>	1	0	1	0	0
Peak 24-hour value (ppm)	0.017	0.015	0.013	0.012	0.013

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

Numbers may not add precisely due to rounding.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.1.2.5 190<sup>th</sup> Air Refueling Wing Emissions

The 190 ARW currently flies and maintains 12 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 190 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

Emissions for the 190 ARW have been quantified in the *Final 2006 Air Emissions Inventory* (190 ARW 2008a). The inventory evaluated the emissions from the 190 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 100 tons per year (tpy) for all criteria pollutants and less than 10 tpy of any single hazardous air pollutant (HAP) or 25 tpy of any combination of HAPs. The 190 ARW does not currently hold a Federal Operating Permit as its emissions are below the major source thresholds, and is not required to hold Class I or Class II

Operating Permits under the Title V permitting requirements or the requirements of the Kansas Department of Health and Environment.

Stationary source emissions at the 190 ARW include emissions from natural gas-fired heating units, waste oil boilers, diesel generators, and open detonation of ordnance. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 190 ARW installation considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet above ground level [AGL]). Baseline emissions also include stationary sources and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #1, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and privately owned vehicles (POVs) associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3-1, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.1.2-4.

**Table 3.1.2-4. 190 ARW Baseline Emissions at Forbes ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	3.63	54.09	99.23	8.48	0.45	0.45	23,585
AGE	0.01	0.02	0.02	0.00	0.00	0.00	2,446
Engine Testing	0.17	2.52	0.69	0.11	0.01	0.01	299
POVs	1.94	26.38	1.46	0.02	0.06	0.03	993
<b>Total Baseline Emissions</b>	<b>5.75</b>	<b>83.00</b>	<b>101.39</b>	<b>8.61</b>	<b>0.53</b>	<b>0.49</b>	<b>27,324</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle

*Source:* 190 ARW 2008a.

### 3.1.3 Safety

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/Runway Protection Zones (RPZs), explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures,



aircraft mishaps, bird/wildlife aircraft strike hazards (BASH), and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Forbes Field Airport.

#### 3.1.3.1 Ground Safety

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 190 ARW are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by Air Force Occupational Safety and Health (AFOSH) requirements. The 190 ARW provides fire, crash, rescue, and structural fire protection for the installation and its aircraft. The 190 ARW has a cooperative response agreement with the local Metropolitan Topeka Airport fire department for mutual aid in fire protection, first responder and lifesaving services, and hazardous materials incident response.

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas (see Appendix A, Section A.3, for specific RPZ discussion and Section 3.1.7 for land use compatibilities). The city of Topeka, Kansas utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations.

##### *Explosive Safety*

The 190 ARW stores, maintains, and uses a small range of munitions required for performance of their mission. Ordnance for the 190 ARW is currently stored in an aboveground storage magazine, with an operating location in a nearby Munitions Inspection Building. Both facilities are located on the north end of the flightline near the engine test cell and have limits of 4,000 pounds and 1,000 pounds of Hazard Division explosives 1.3 and 1.4, respectively.

##### *Anti-Terrorism/Force Protection*

Many of the military facilities at the 190 ARW installation at Forbes Field Airport were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the 190 ARW would incorporate these standards to the maximum extent practicable.

### 3.1.3.2 Flight Safety

#### *Flight Safety Procedures*

Aircraft flight operations from Forbes Field Airport are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures* 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

#### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight-hours (Air Force Safety Center [AFSEC] 2012). The 190 ARW has not experienced a Class A mishap in the past 11 years (190 ARW 2013b). Together, the low KC-135 mishap rate and the lack of 190 ARW mishap history would make the chances of a Class A accident involving a KC-135 aircraft at Forbes Field Airport an unlikely event.

#### *Bird/Wildlife Aircraft Strike Hazard*

USAF BASH Team maintains a database that documents all reported bird/wildlife aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 190 ARW of the KS ANG has an on-going BASH program through which information and assistance is freely shared between airfield users, the Forbes Field Airport staff, and the local air traffic controllers. Serious BASH-related accidents within the immediate Forbes Field Airport area are unusual and have never resulted in a Class A mishap (190 ARW 2013a). The 190 ARW has recorded 63 minor BASH incidents from 2002 to 2012, with an average of fewer than six per year (190 ARW 2013a).

#### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Airbases must establish jettison areas and

procedures to minimize the impact of fuel jettisoning. Ideally, jettison areas are established at altitudes above 20,000 feet AGL, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources. AFIs cover the fuel jettison procedures, and local operating policies define specific fuel ejection areas for each base.

After receiving approval from the Operations Group Commander and coordinating with Kansas City Air Route Traffic Control Center, the primary fuel jettison area for the 190 ARW is a holding pattern between 20 and 30 miles southwest of the field at 21,000 feet MSL. The aircrew would follow fuel jettisoning procedures in AFI 11-2KC135, *C/KC-135 Operations Procedures* (2010).

### **3.1.4 Soils and Water**

#### **3.1.4.1 Soils**

This area of Kansas is within the Interior Plains on a glacial drift plain with broad, smooth ridgetops and slopes that are nearly level to strongly sloping. Loess covers the surface of almost all of the uplands in this area underlying glacial drift (U.S. Department of Agriculture [USDA] 2006). The 190 ARW installation is located on relatively flat improved land with an elevation of approximately 1,080 feet MSL (Kansas Army National Guard 2010).

The Natural Resources Conservation Service (NRCS) Soil Survey for Pawnee County, Kansas identifies the following three individual soil types at the installation:

*Ladysmith silty clay loam, 0 to 1 percent slopes:* This soil is typically found on summits and uplands from weathered limestone and shale. This soil type displays properties that would potentially limit building site development due to high shrink-swell potential, low strength, and depth to saturated zone. In addition, this soil type is designated as Prime Farmland (NRCS 2013a). Approximately 70 percent of the installation is composed of this soil type.

*Ladysmith silty clay loam, 1 to 3 percent slopes:* This soil is identical to the soil type above; however, the slopes are slightly steeper. This soil type is also designated as Prime Farmland (NRCS 2013a). Approximately 28 percent of the installation is composed of this soil type.

*Pawnee clay loam, 4 to 8 percent slopes, eroded:* This soil type is often found on side slopes of till plains. The rating class for building site development is considered very limited due to high shrink-swell potential, low strength, and depth to saturated zone. In addition, this soil type is considered a Farmland of Statewide Importance (NRCS 2013a). Approximately 2 percent, located in the northwestern corner of the installation, is composed of this soil type.

#### 3.1.4.2 Surface Water

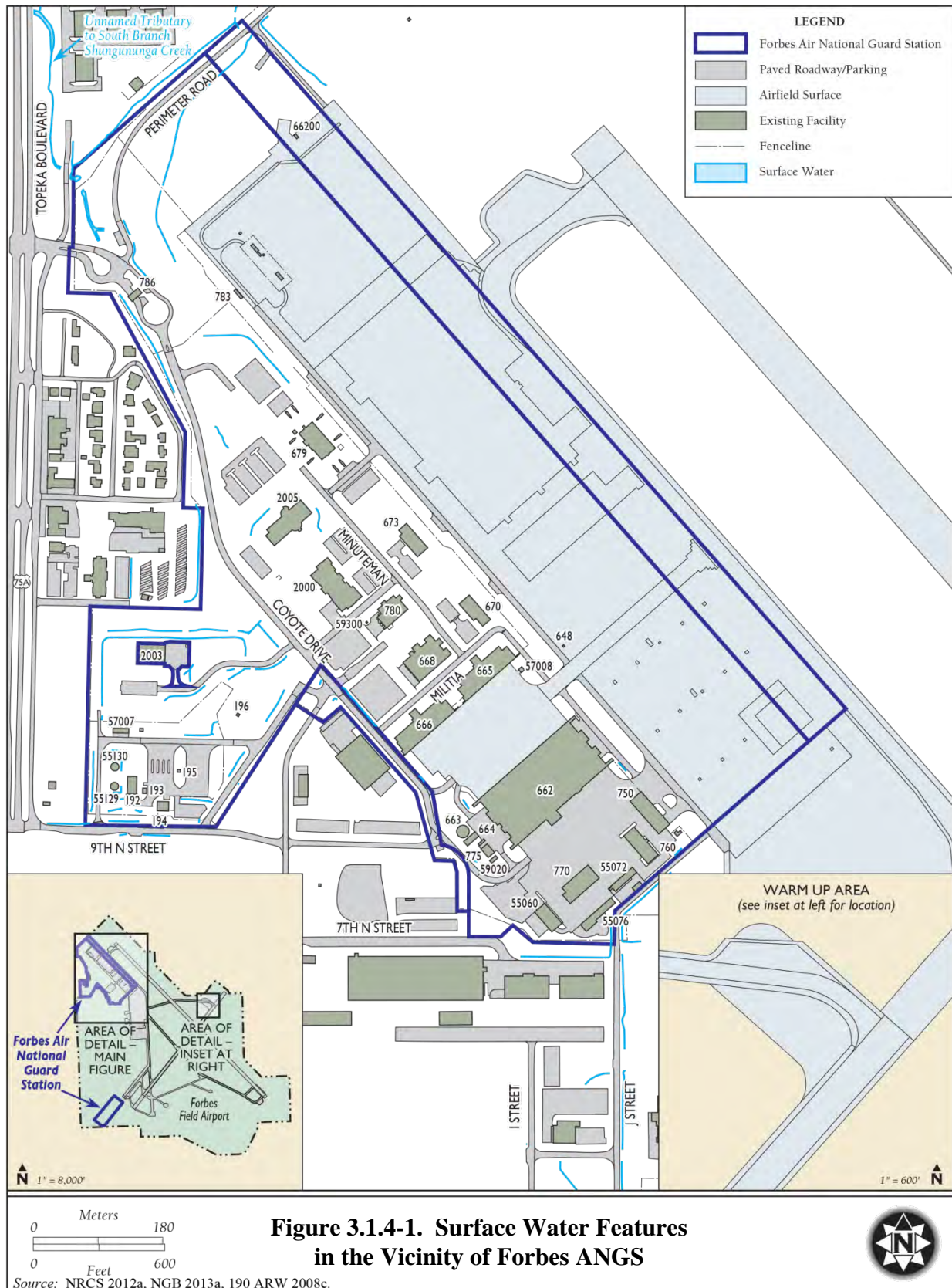
The 190 ARW installation is located within the Shunganunga Creek Watershed, a sub-basin of the Middle Kansas Watershed that encompasses over 5,684 square miles within the state of Kansas (USEPA 2013b). The Kansas River valley is 138 miles long; this course roughly follows the maximum extent of the Kansan glaciation, and the river likely began as a path of glacial meltwater drain (Kansas Center for Agricultural Resources and the Environment 2011). The Shunganunga Creek Watershed drains the Shunganunga Creek until it joins the Kansas River further downstream.

Surface water features within the vicinity of the 190 ARW installation include Lynn Creek to the east and South Branch Shunganunga Creek to the west (Figure 3.1.4-1). The Kansas River is approximately 6 miles north of the installation and the Wakarusa River is approximately 3 miles south. Forbes Field Airport is located on a drainage divide between Lynn Creek to the east and the South Branch of Shunganunga Creek to the west. Lynn Creek flows southeasterly into the Wakarusa River approximately 5 miles from the installation. The South Branch Shunganunga Creek flows north into the Kansas River about 6.5 miles from the installation (190 ARW 2008b).

Surface water within the installation primarily consists of a series of manmade ditches, storm sewers, and drainage swales. Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes. There are three primary drainage basins on the installation: SDO-001, -002, and -003. All three outfalls ultimately join the South Branch Shunganunga Creek. The two outfalls associated with industrial activity (SDO-001 and -002) are regulated under the Kansas General Permit for Stormwater Runoff Associated with Industrial Activity (S-ISWA-1111-1). The permit is administered by the Kansas Department of Health and the Environment under the auspice of the USEPA (190 ARW 2012a).

#### 3.1.4.3 Groundwater

Groundwater in this area often occurs in valley-fill of alluvium and terrace deposits associated with the Kansas River Valley. There is no regional circulation of groundwater in this area due to the highly dissected nature of the upland topography. Therefore, water level fluctuations in upland wells are a direct result of local additions or withdrawals of groundwater. Water-level fluctuations in wells in the valley alluvium are somewhat more complex owing to the influence of the Kansas River and its tributaries which tend to reverse normal groundwater gradients (Kansas Geological Survey 2012).



Groundwater resources underlying the 190 ARW are found in two distinct units: the Nodaway Coal underlying bedrock and the unconsolidated material overlying the bedrock. The water table occurs at 10 feet below ground surface beneath most of the installation but ranges from 2 to 24 feet in portions of the installation. Groundwater flow is generally to the northwest. Due to lack of hydraulic connectivity of groundwater underlying the installation, groundwater does not flow from one end of the installation to the other, but occurs as isolated pockets. The potential for contaminant migration in groundwater underlying the installation is low due to the lack of hydraulic connectivity (190 ARW 2008b).

#### 3.1.4.4 Floodplains

Per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Shawnee County, Kansas, Panel 310 (Map Number 20177C0310E, Effective September 29, 2011), the 190 ARW installation is located within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding (FEMA 2011).

### 3.1.5 Biological Resources

#### 3.1.5.1 Vegetation

Forbes Field Airport occurs within the Prairie Parkland (Temperate) Province. Vegetation in this region typically is forest-steppe characterized by intermixed prairie, groves, and bands of deciduous trees. Prairies are dominated by grasses such as big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*). Upland forests are dominated by oak (*Quercus* spp.) and hickory (*Carya* spp.) (Bailey 1995). The majority of the airport is developed or actively landscaped, with little natural vegetation or habitat remaining.

#### 3.1.5.2 Wildlife

Due to the lack of substantial pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present at the airport and the 190 ARW installation consists of species that are highly adapted to developed and disturbed areas. Forbes ANG is located within the Central Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found at Forbes Field Airport or its vicinity are protected under the Migratory Bird Treaty Act of 1918 (MBTA). Common bird species observed on the installation include Killdeer (*Charadrius vociferous*), Barn Swallow (*Hirundo rustica*), Great Horned Owl (*Bubo virginianus*), European Starling (*Sturnus vulgaris*), Chimney Swift (*Chaetura pelagica*), Western Meadowlark

(*Sturnella neglecta*), Mourning Dove (*Zenaida macroura*), American Kestrel (*Falco sparverius*), American Robin (*Turdus migratorius*), Broad-winged Hawk (*Buteo platypterus*), Franklin's Gull (*Spermophilus franklinii*), Rock Pigeon (*Columbia livia*), Lesser Scaup (*Aythya affinis*), Horned Lark (*Eremophila alpestris*), and Eastern Meadowlark (*Sturnella magna*). Other common wildlife include the white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), and eastern cottontail (*Sylvilagus floridanus*) (190 ARW 2004, 2012b).

### 3.1.5.3 Special Status Species

No federally or state listed species have been observed at Forbes Field Airport. The potential for several federally and state listed species to occur within Shawnee County within the vicinity of the airport exists; however, there is little to no habitat for these species within the airport or the installation. A list of these species can be found in Appendix E. There is no critical habitat located on the installation.

### 3.1.5.4 Wetlands

No wetland delineation has been conducted on the 190 ARW installation (190 ARW 2004). In addition, no National Wetland Inventory wetlands occur on the installation (U.S. Fish and Wildlife Service [USFWS] 2013). A general survey of the proposed construction sites conducted in March 2013 showed no signs of wetlands.

## 3.1.6 Cultural Resources

### 3.1.6.1 Archaeological Resources

All undeveloped and relatively undisturbed areas of the 190 ARW installation have been intensively surveyed for archaeological resources and no archaeological resources have been identified at the 190 ARW installation (KS ANG 2008).

The 2008 cultural resources survey verified that the entire installation has low to no probability for archaeological resources due to past disturbances from construction and the high level of development. Additionally, the installation lacks the types of landforms associated with previously recorded cultural resources on adjacent lands (KS ANG 2008, 2010). The Kansas SHPO concurred with these findings (Zollner 2008).

### 3.1.6.2 Architectural Resources

All of the 190 ARW installation's 24 buildings pre-dating the end of the Cold War (pre-1990) have been inventoried and evaluated for NRHP eligibility (KS ANG 2008). One building



(Building 679) was determined eligible by the Kansas SHPO for listing in the NRHP. The remaining 23 buildings were determined not eligible for listing in the NRHP. The Kansas SHPO concurred with these determinations (see Zollner 2008 in Appendix B4). Building 679 is eligible for listing in the NRHP under criterion A for having contributed to events important in history (the U.S. defensive military response during the Cold War) and under criterion C as a prime example of a particular type of architecture. It was one of only ten 150-men alert readiness structures constructed in the U.S., and one of approximately 40 alert crew dormitories of the various sizes nationwide that are extant today. In May of 2008, the Kansas SHPO received notice of a proposed major renovation of Building 679. Subsequently, a Memorandum of Agreement was signed among the Kansas SHPO, the KS ANG, and the 190 ARW that outlined procedures to mitigate the adverse effects the renovations would have to this NRHP-eligible building (see Appendix B4). The building was demolished to the foundation and entirely rebuilt the following year.

### 3.1.6.3 Traditional Resources

The 190 ARW contains no known traditional resources; however, eight federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified including: Citizen Potawatomi Nation, Delaware Nation, Kaw Nation, Osage Nation of Oklahoma, the Prairie Band Potawatomi Tribe, Absentee Shawnee Tribe of Oklahoma, East Shawnee Tribe of Oklahoma, and the Wichita and Affiliated Tribes.

### 3.1.7 Land Use

Forbes ANG is located on Forbes Field Airport, a public use airport owned by the MTAA. The airfield is located in Topeka, Shawnee County, Kansas, about 10 miles south of the city center. The 190 ARW installation consists of approximately 160 acres on the northwest corner of Forbes Field Airport, adjacent to the runway.

Land adjacent to the airfield in unincorporated Shawnee County is traditionally agricultural and remains sparsely populated and rural in character. On the west side of the airfield within the city limits of Topeka, industrial uses have developed along U.S. Highway 75. Long-term land use for the city is guided by a comprehensive plan. Short-term actions are regulated by zoning ordinances implemented through the Topeka Municipal Code and Shawnee County (City of Topeka 2011, Shawnee County 2013)

Zoning surrounding the airport generally supports compatible land use planning and provides for protection of the areas surrounding Forbes Field Airport. The Topeka Municipal Code 1981 § 4-55 defines and establishes airport hazard zones, height limitations, and land use restrictions

within these zones. This zoning protects RPZs. Detailed descriptions of RPZs can be found in Section A.3.1.1 of Appendix A. The City of Topeka has zoned the areas to the west of the airfield for industrial use. A triangular area, north of the airport boundary and between U.S. Highway 75 and S.E. 53<sup>rd</sup> Street, is a Planned Unit Development (PUD) district, which allows more flexibility in the use of land and structures to account for specific site features than standard land use categories. The PUD north of the airport currently includes industrial uses and vacant land, but also accommodates streets and commercial use (City of Topeka 2011). The unincorporated areas to the east of the airfield are zoned as Residential Reserve District, where the maximum density permitted is one single-family dwelling per 3 acres minimum. This designation provides a transitional area between urbanized development and rural-agricultural areas where increased urbanization occurs if municipal services and facilities were to become available (Shawnee County 2013).

Currently, aircraft noise from Forbes Field Airport exposes approximately 166 acres of off-airport areas of land zoned as industrial, residential reserve, and PUD to noise levels between 65 dB and 70 dB DNL. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB and 70 dB DNL off-airport noise contour areas. Figure 3.1.7-1 shows an overlay of the baseline noise contours onto a map displaying the existing land use in the vicinity of Forbes Field Airport.



### **3.1.8 Infrastructure and Transportation**

#### **3.1.8.1 Potable Water System**

Potable water for the 190 ARW installation is provided by the City of Topeka. Potable water in the area is supplied primarily from the Kansas River. The City of Topeka Water Division pumps an average of approximately 8 trillion gallons of water per year to its customers (City of Topeka 2013a). In calendar year (CY) 2012, 2,424,824 gallons of potable water were supplied to the 190 ARW installation (190 ARW 2013b).

#### **3.1.8.2 Wastewater**

The 190 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including oil/water separator discharge (OWS), wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 190 ARW installation is conveyed into the municipal sewage system to the City of Topeka Wastewater Treatment Plant. The City owns two wastewater treatment plans, The Oakland and the North Topeka Wastewater Treatment Plants, which have a combined capacity to treat 28 million gallons of wastewater daily (City of Topeka 2010).

#### **3.1.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 190 ARW Stormwater Pollution Prevention Plan (SWPPP) (2012), the 190 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.1.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.1.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 190 ARW installation by West Star Energy via an underground powerline. Natural gas is supplied by Kansas Gas Service via an 8-inch main line. Electricity consumption for CY 2012 at the 190 ARW installation was 6,144,451 kilowatt-hours. Natural gas consumption for CY 2012 at the 190 ARW installation was 152,900 cubic feet (190 ARW 2013b).

### 3.1.8.5 Solid Waste Management

Municipal solid waste at the 190 ARW installation is managed in accordance with the 190 ARW Solid Waste Management Plan (190 ARW 2009a) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 190 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 190 ARW installation and transported by contractor to the Rolling Meadows Waste Management facility in Topeka, Kansas.

### 3.1.8.6 Transportation

The 190 ARW installation is located within close proximity to several major highways. Interstate (I-) 70 and I-470 lie to the north of the installation and run primarily east and west. In addition, I-335 intersects with I-470 and runs north and south, to the west of the installation. The installation's main gate is accessed from SW Topeka Boulevard, which can be accessed from I-470 or U.S. Highway 75.

## 3.1.9 Hazardous Materials and Waste

### 3.1.9.1 Hazardous Materials

Hazardous materials are used at the 190 ARW installation for aircraft operations support and maintenance, including petroleum, oil, and lubricant (POL) management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight simulation. Types of hazardous substances found on the 190 ARW installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (190 ARW 2009b).

There is currently one 1,500-gallon aboveground storage tank (AST) on the 190 ARW installation in Building 176 that stores polyvinyl chloride. There are currently two underground storage tanks (USTs) located on the 190 ARW installation. One is located at Building 775 and is

used for capturing an accidental release of pesticide. The other is an 8,000-gallon UST in the POL (ANG 2008).

### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, lead-based paint (LBP), and polychlorinated biphenyls (PCBs). Asbestos-containing material (ACM) is known to occur in Buildings/Hangars 665, 666, 673, 679, 692, 770, and 780. ACM was removed from Buildings 151 and 167 prior to a recent renovation that was completed. In addition, ACM was removed from Buildings 656 and 659 prior to their demolition in the early 1990s (190 ARW 2005).

An LBP survey has not been conducted at the 190 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation.

The installation is considered PCB free. PCBs may still be present in older light ballasts; however, these are not regulated as PCB equipment or PCB-contaminated equipment (ANG 2008).

#### 3.1.9.2 Hazardous Waste Management

The 190 ARW Oil and Hazardous Substances Spill Prevention and Response Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (190 ARW 2012c). The 190 ARW Hazardous Waste Management Plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (190 ARW 2009b).

The 190 ARW is regulated as a Small Quantity Generator of hazardous waste and maintains USEPA Identification Number KS0572824043. A hazardous waste generation point is where the waste is initially created or generated. A satellite accumulation point (SAP) is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at an SAP are accumulated in appropriate containers before being transferred to the installation central accumulation point (CAP). There are six SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 662, 668, and 770. The installation CAP is located in Building 57008 (190 ARW 2009b).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Two former OWSs were located on the installation but were removed in the 1990s. Currently there are no active OWSs located within the 190 ARW installation (190 ARW 2005).

### 3.1.9.3 Environmental Restoration Program

Ten potentially contaminated Environmental Restoration Program (ERP) sites were identified in 1986 for closure at the 190 ARW.

For all except three sites, Decision Documents for no further action were recorded due to a determination to have little or no threat for contaminant migration. For the remaining three sites, Decision Documents for no further action but periodic groundwater monitoring were recorded (190 ARW 2005). Table 3.1.9-1 provides details for each of these sites and Figure 3.1.9-1 shows the locations.

**Table 3.1.9-1. ERP Sites within the 190 ARW Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
1	This site is adjacent to the JP-4 storage area where contamination was judged to be minimal. Monitoring conducted during 1990-1993 at these three sites were completed with no contaminants reported above detection limits.	Closed
6	This site is a surface drainage ditch and storm sewer overflow. Low contaminant concentrations and relative immobility of contaminants cause the risk to the public or the environment to be judged minimal. Monitoring conducted during 1990-1993 at these three sites were completed with no contaminants reported above detection limits.	Closed
8	This site is the refueling hydrant C, where Total Petroleum Hydrocarbon was reported in groundwater and soil gas samples. No evidence of contaminant migration was indicated. Monitoring conducted during 1990-1993 at these three sites were completed with no contaminants reported above detection limits.	Closed

Notes: ERP = Environmental Restoration Program

Source: 190 ARW 2005.

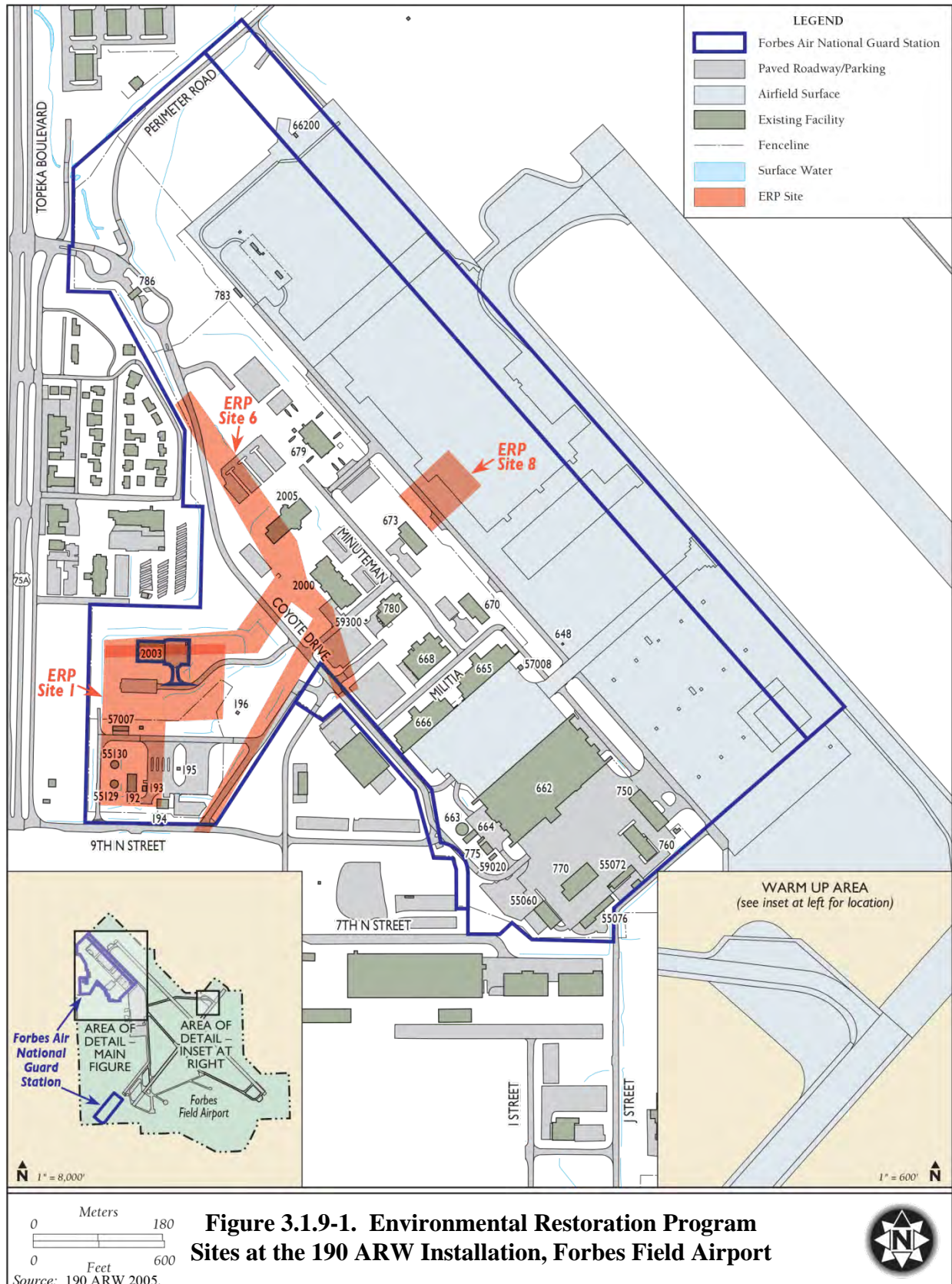
### 3.1.10 Socioeconomics

#### 3.1.10.1 Population and Employment

##### *Population*

Forbes ANG is located approximately 5 miles south of Topeka in Shawnee County, Kansas. Current population data and estimates for the state of Kansas, Shawnee County, and the city of Topeka are provided in Table 3.1.10-1. From 1990 to 2010, Shawnee County's population increased by 16,958, an increase of approximately 11 percent (U.S. Census Bureau [USCB] 1990a, 2000a, 2010a).





**Table 3.1.10-1. Population Growth within the Vicinity of Forbes ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
Kansas	2,477,574	2,688,418	2,853,118
Shawnee County	160,976	169,871	177,934
City of Topeka	119,883	122,377	127,473

Source: USCB 1990a, 2000a, 2010a.

The 190 ARW currently supports a workforce authorization of 1,242, including 403 full-time and 839 part-time personnel (see Table 2.3-6).

### *Employment and Earnings*

Table 3.1.10-2 presents total labor force and employment rates for Kansas, Shawnee County, and the city of Topeka. Based on 2007-2011 American Community Survey (ACS) 5-year estimates, there were 92,855 persons in the labor force (able to work) and 86,188 employed within Shawnee County, resulting in an unemployment rate of approximately 7 percent. Top employment industries in Shawnee County include 1) educational services, and health care and social assistance; 2) retail; and 3) public administration (USCB 2011a). Principal employers include State of Kansas, Storemont-Vail Healthcare, Topeka School District, Blue Cross Blue Shield, and St. Francis Health Center (City of Topeka 2013b).

**Table 3.1.10-2. Employment Data (2011) within the Vicinity of Forbes ANG**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
Kansas	1,506,400	1,410,911	95,489	6.3
Shawnee County	92,855	86,188	6,667	7.2
City of Topeka	66,056	60,550	5,506	8.3

Note: Employment numbers include individuals in the Armed Forces.

Source: USCB 2011a.

### 3.1.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 31,296 students were enrolled in schools from Kindergarten through Grade 12 in Shawnee County (USCB 2011a).

### 3.1.10.3 Housing

In 2010, the number of housing units in Shawnee County was 79,140 with a vacancy rate of approximately 8 percent (USCB 2010a).

### 3.1.11 Environmental Justice and the Protection of Children

#### 3.1.11.1 Minority and Low-Income Populations

Table 3.1.11-1 displays the minority, low-income, and children under age 18 within the state of Kansas, as well as the city and county within the vicinity of Forbes Field Airport. Approximately 19 percent of the population of Shawnee County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 16 percent for the state of Kansas. The percentage of population living below the poverty level for the state of Kansas (approximately 13 percent) is the lower than Shawnee County (approximately 15 percent) (USCB 2010a).

**Table 3.1.11-1. Population within the Vicinity of Forbes ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
Kansas	2,853,118	462,074	16.2	359,493	12.6	726,939	25.5
Shawnee County	177,934	33,522	18.8	26,156	14.7	44,171	24.8
City of Topeka	127,473	30,301	23.8	24,092	18.9	31,093	24.4

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low-income population numbers are from the 2007-2011 ACS 5-Year Estimates.  
2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010a, 2011a.

Currently there are no populations, including minority or low-income populations, located in the vicinity of Forbes Field Airport within the baseline DNL greater than 65 dB.

#### 3.1.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Shawnee County was approximately 44,171 (approximately 25 percent of the population) (Table 3.1.11-1). The state of Kansas has a slightly higher percentage population of children compared to the county (approximately 26 percent) (USCB 2010a). There are no on-installation housing or facilities for children located at the 190 ARW installation. Currently, there are no Kindergarten through Grade 12 off-installation schools that are exposed to DNL of 65 dB or above.

## **3.2 JOINT BASE MCGUIRE-DIX-LAKEHURST**

JB MDL, home of the 108 WG of the NJ ANG, is located in central New Jersey, spanning more than 20 miles with more than 42,000 contiguous acres. The base is located 18 miles southeast of Trenton, 45 miles east of Philadelphia, 50 miles south of New York City, and 14 miles inland from the Atlantic Ocean.

### **3.2.1 Noise**

To evaluate noise impacts in the vicinity of a military installation, the USAF uses NOISEMAP, a computer program used to model noise exposure in the vicinity of military airfields. Noise contours were generated for JB MDL (McGuire Field) in 2012. For more detailed information on the noise modeling methods, see Appendix A, Section A.1.2.

#### **3.2.1.1 Baseline Operations**

In 2012, JB MDL initiated an update to their 2009 McGuire AFB Air Installation Compatible Use Zone (AICUZ) study that included noise modeling for current McGuire Field aircraft operations. The aircraft operations included in the 2012 NOISEMAP update form the baseline for this analysis.

Based on aircraft operations data validated in March 2013, approximately 62,686 total aircraft operations occurred at McGuire Field during the 12-month period ending October 2011 (JB MDL 2013a). An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. Table 3.2.1-1 summarizes the frequency of aircraft operations for McGuire Field based on information provided by base staff, flying organizations, and air traffic control personnel. The majority of active USAF and ANG flying units currently at McGuire Field operate the C-17, KC-10, KC-135, and the C-32 aircraft. Although the number of aircraft operations at an installation varies from day to day, for McGuire Field, operations were calculated for an AAD, meaning that yearly operations were averaged across all 365 days of the year. Table 3.2.1-1 reflects a total of approximately 172 aircraft operations on an AAD (62,686 divided by 365 days). Approximately 34 percent of the total operations at McGuire Field occur during environmental night (10:00 p.m. through 7:00 a.m.).

Based on the 2012 baseline data, the 108 WG KC-135 aircraft flew a total of 8,340 annual airfield operations, or an average of 23 airfield operations a day. Approximately 20 percent of the total KC-135 operations occur during environmental night. Approximately 13 percent of total operations at McGuire Field are accomplished by the 108 ARW KC-135 aircraft.

**Table 3.2.1-1. Current McGuire Field Annual Aircraft Operations**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-135	3,348	822	3,308	862	6,656	1,684	8,340
Other Aircraft <sup>3</sup>	18,842	8,316	15,895	11,293	34,737	19,609	54,346
<b>Total</b>	<b>22,190</b>	<b>9,138</b>	<b>19,203</b>	<b>12,155</b>	<b>41,393</b>	<b>21,293</b>	<b>62,686</b>

Notes: 1<sup>1</sup> Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

3. Other based military and civilian aircraft, and transient aircraft (multiple type aircraft); example aircraft include: KC-10, C-17, and C-32.

Source: JB MDL 2013a, Lamar 2013.

### 3.2.1.2 Runway and Flight Profiles

McGuire Field aircraft use straight in approaches, overhead approaches, IFR or radar closed patterns, and VFR closed patterns along with re-entry VFR patterns as the basic flight patterns for training, local arrival, and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise* (JB MDL 2013a).

### 3.2.1.3 Existing Noise Environment

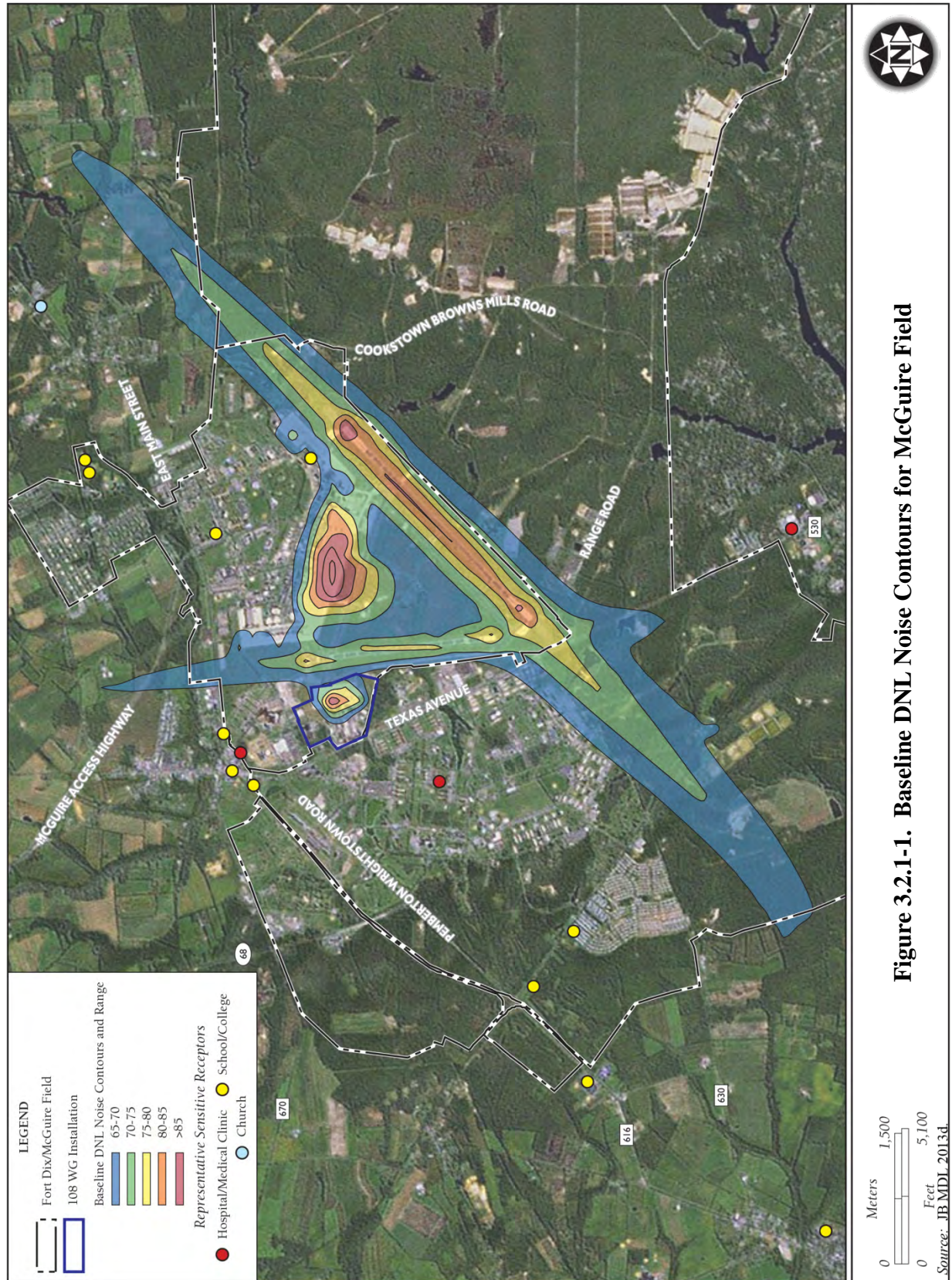
Noise contours developed for the baseline conditions at JB MDL are shown in Figure 3.2.1-1. The acreage within each DNL contour on and off JB MDL property is shown in Table 3.2.1-2. Approximately 3,561 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.2.7, *Land Use*.

**Table 3.2.1-2. Acres within Baseline Noise Contours, McGuire Field**

<i>Noise Level (dB)</i>	<i>On-Base (acres)</i>	<i>Off-Base (acres)</i>	<i>Total (acres)</i>
65-70	1,375	311	1,686
70-75	1,186	21	1,207
75-80	370	0	370
80-85	222	0	222
Greater than 85	76	0	76
<b>Total</b>	<b>3,229</b>	<b>332</b>	<b>3,561</b>

Note: dB = decibel





### *Potential Hearing Loss*

As shown in Table 3.2.1-2, there is no property off the JB MDL that falls within the baseline 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### **3.2.1.4 Joint Base McGuire-Dix-Lakehurst Noise Abatement Procedures**

JB MDL has placed certain restrictions on flying activities that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations. Local noise abatement procedures are published in AFI 11-2KC135 V3, *108 ARW Supplement* (2009).

For McGuire Field, noise abatement procedures include, but are not limited to, restrictions on rolling and intersection take-offs, and maximum gross weights for practice landings (i.e., closed patterns). Additional McGuire Field local restrictions provide additional protection in housing areas by requiring aircraft to avoid overflight of the housing areas by 1,600 feet MSL from 6:00 a.m. to 10:00 p.m. and restricting aircraft overflight between the hours of 10:00 p.m. and 7:00 a.m., and to avoid overflight of Fort Dix housing, McGuire AFB Clinic, and Deborah Hospital at all times (JB MDL 2009).

#### **3.2.1.5 Joint Base McGuire-Dix-Lakehurst Noise Complaints Procedures**

Currently, JB MDL receives noise complaints through the 87<sup>th</sup> Air Base Wing Public Affairs office. In 2012, McGuire Field received a total of nine noise complaints. Each complaint was routed through JB MDL Radar Approach Control to determine what, if any, military aircraft were in the vicinity of the noise complainant. If it is determined that a JB MDL aircraft was in the vicinity of the complainant, the complaint is forwarded to the appropriate operations flying groups for response and appropriate action (McGee 2013a).

### **3.2.2 Air Quality**

#### **3.2.2.1 Regulatory Setting**

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The New Jersey Department of Environmental Protection (NJDEP) is the agency responsible for the regulation of air quality within the state of New Jersey. The state of New Jersey regulates air quality through the New Jersey Administrative Code, Title 7:27A through 7:27D. The state of New Jersey has adopted additional ambient air quality standards that apply within the state. The NAAQS and state AAQS are summarized in Table 3.2.2-1.



**Table 3.2.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	NATIONAL STANDARDS <sup>a</sup>		NEW JERSEY STANDARDS	
		<i>Primary</i> <sup>b,c</sup>	<i>Secondary</i> <sup>b,d</sup>	<i>Primary</i> <sup>b,c</sup>	<i>Secondary</i> <sup>b,d</sup>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary	—	—
	1-hour	—	—	0.12 ppm (235 µg/m <sup>3</sup> )	0.08 ppm (160 µg/m <sup>3</sup> )
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—	9 ppm (10 mg/m <sup>3</sup> )	Same as primary
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—	35 ppm (40 mg/m <sup>3</sup> )	Same as primary
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—	—	—
SO <sub>2</sub>	Annual	—	—	0.03 ppm (80 µg/m <sup>3</sup> )	0.02 ppm (60 µg/m <sup>3</sup> )
	24-hour	—	—	0.14 ppm (365 µg/m <sup>3</sup> )	0.1 ppm (260 µg/m <sup>3</sup> )
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—	—	—
Total Suspended Particulate	Annual	—	—	75 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>
	24-hour	—	—	260 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>10</sub>	Annual	—	Same as primary	—	—
	24-hour	150 µg/m <sup>3</sup>	Same as primary	—	—
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	—	—
	24-hour	35 µg/m <sup>3</sup>	Same as primary	—	—
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary	1.5 µg/m <sup>3</sup>	Same as primary

Notes: a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

Source: USEPA 2012.

JB MDL is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. The USEPA has classified the Philadelphia-Wilmington-Atlantic City area of the states of Pennsylvania, Delaware, and New Jersey as nonattainment for the O<sub>3</sub> (marginal nonattainment) NAAQS, and a maintenance area for PM<sub>2.5</sub> and CO. The region is designated attainment/unclassified area for all other criteria pollutants. The Proposed Action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (oxides of nitrogen [NO<sub>x</sub>] and volatile organic compounds [VOCs]) is 100 tpy, and the *de minimis* emission thresholds for PM<sub>2.5</sub> and CO emissions are also 100 tpy.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

#### 3.2.2.2 Climate and Meteorology

JB MDL is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. The climate in the central portion of New Jersey is influenced by its vegetation, with moderation due to its proximity to the Atlantic Ocean. Scrub pine and oak forests dominate the interior southern portion of New Jersey, hence the name, Pine Barrens. Sandy soils, which are porous and not very fertile, have a major effect on the climate of this region. On clear nights, solar radiation absorbed during the day is quickly radiated back into space, resulting in surprisingly low minimum temperatures. The porous soil permits any precipitation to rapidly infiltrate and leave surfaces quite dry. Drier conditions allow for a wider range between the daily maximum and minimum temperatures, and make the area vulnerable to forest fires.

The warmest month of the year is July with an average maximum temperature of 87.10°F, while the coldest month of the year is January with an average minimum temperature of 22.50°F. Temperature variations between night and day tend to be moderate during summer with a difference that can reach 24°F, and moderate during winter with an average difference of 20°F. The annual average precipitation at Fort Dix is 47.12 inches. Rainfall is fairly evenly distributed throughout the year. The wettest month of the year is August with an average rainfall of 5.16 inches (Northeast Regional Climate Center 2013a). Prevailing winds in New Jersey are from the southwest in summer and from the northwest in winter.

### 3.2.2.3 Regional and Local Air Pollutant Sources

The 108 WG of the NJ ANG is based at McGuire Field in New Jersey. The area surrounding JB MDL is a mix of agricultural uses, developed areas, and undeveloped areas and includes Fort Dix to the west.

The USEPA's National Emissions Inventory includes data for the year 2008 for Burlington and Ocean counties. Table 3.2.2-2 summarizes the regional emissions (stationary, area-wide, and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.2.2-2. Regional Emissions for Burlington and Ocean Counties, New Jersey**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions – Burlington County</b>						
Stationary Sources	6,767	1,882	2,935	500	1,010	940
Area-Wide Sources	12,110	24,564	311	73	4,191	1,066
Mobile Sources	60,287	6,056	9,594	122	592	487
<b>Total</b>	<b>79,164</b>	<b>32,502</b>	<b>12,840</b>	<b>695</b>	<b>5,793</b>	<b>2,493</b>
<b>Regional Emissions – Ocean County</b>						
Stationary Sources	5,078	1,277	2,881	582	883	666
Area-Wide Sources	6,369	19,656	339	36	2,740	583
Mobile Sources	70,288	12,765	8,415	109	656	516
<b>Total</b>	<b>81,735</b>	<b>33,698</b>	<b>11,635</b>	<b>727</b>	<b>4,279</b>	<b>1,765</b>

*Notes:* Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant  
 Numbers may not add precisely due to rounding.  
 CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.2.2.4 Baseline Air Quality

Representative background air monitoring data for the 108 WG for the period 2008-2012 are shown in Table 3.2.2-3. The closest monitoring stations to JB MDL are located in Ocean County (Jackson Township), Camden County (Camden and Winslow), Trenton, and Burlington County. Values measured in more developed areas such as Camden and Trenton are likely to be conservative due to the amount of development in those areas.

As shown in Table 3.2.2-3, O<sub>3</sub> exceedances have been measured in the developed areas surrounding JB MDL during the recent 5-year period. The data show that the area did not experience violations of other NAAQS.

**Table 3.2.2-3. Ambient Air Monitoring Data for the JB MDL Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.100	0.085	0.094	0.094	0.09
Days above federal standard (0.075 ppm)	15	2	16	11	9
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	36.2	35.8	36.5	33.8	27.7
Days above federal standard (35 µg/m <sup>3</sup> )	1	0	1	0	0
Annual Average value (µg/m <sup>3</sup> )	11.1	9.3	9.5	10.3	8.8
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	56	81	86	77	67
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	3.7	2.5	2.7	0.7	2.2
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.8	1.4	1.9	0.3	1.7
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.090	0.045	0.046	NA	0.051
98 <sup>th</sup> Percentile (ppm)	0.058	0.040	0.040	NA	0.043
Days above federal standard (0.100 ppm)	0	0	0	NA	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.040	0.028	0.016	NA	0.017
99 <sup>th</sup> Percentile (ppm)	0.025	0.020	0.010	NA	0.015
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	NA	0
Peak 24-hour value (ppm)	0.013	0.015	0.006	NA	0.008

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.2.2.5 108<sup>th</sup> Wing Emissions

The 108 WG currently flies and maintains eight KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 108 WG include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

Emissions for the 108 WG have been quantified in the *Final 2009 Air Emissions Inventory* (108 WG 2011a). The inventory evaluated the emissions from the 108 WG to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 25 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, 100 tpy for all other criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs.

In December 2009, the base was issued an air permit from the NJDEP that contains operational limits such that its potential emissions are restricted below the Title V major source thresholds. While the 2009 Air Emissions Inventory also contains fugitive emission calculations, it demonstrates that total base-wide potential emissions from stationary sources are below the major source thresholds.

Stationary source emissions at the 108 WG include emissions from natural gas-fired heating units, emergency generators and pumps, fuel tanks, fuel cell maintenance, and various minor sources such as solvent use, deicing, and welding. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 108 WG considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #2, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3.7 utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.2.2-4.

**Table 3.2.2-4. 108 WG Baseline Emissions at JB MDL**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	3.21	49.03	83.34	7.43	0.39	0.39	20,659
AGE	0.01	0.01	0.09	0.00	0.00	0.00	2,157
Engine Testing	0.14	2.01	0.55	0.09	0.01	0.01	239
POVs	5.12	110.72	5.20	0.07	0.21	0.12	3,543
<b>Total Baseline Emissions</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>7.59</b>	<b>0.61</b>	<b>0.53</b>	<b>26,597</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle.

*Source:* 108 WG 2011a.

### **3.2.3 Safety**

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding McGuire Field.

#### **3.2.3.1 Ground Safety**

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 108 WG are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by AFOSH requirements. The USAF active duty host at JB MDL provides fire, crash, rescue, and structural fire protection for the McGuire Field installation, including the 108 WG, and its aircraft. Aircraft Rescue Fire Fighting (ARFF) services at McGuire Field are available on a 24-hour basis. Upon notification of an in-flight or ground emergency, the crash and rescue services personnel would coordinate emergency services. ARFF equipment and personnel at McGuire Field meet USAF requirements (JB MDL 2013b).

##### *Accident Potential Zone/Runway Protection Zone*

APZs are established to delineate recommended surrounding land uses for the protection of people and property on the ground, as described in Appendix A, Section A.3. At McGuire Field, airfield operations currently has waivers for two buildings, 1931 and 5650, which violate the CZs for Runways 24 and 36 respectively. Both are scheduled for demolition. Details of development and land use in the McGuire Field vicinity are included in Section 3.2.7, *Land Use*.

##### *Explosive Safety*

The 108 WG uses a small range of munitions required for performance of their mission. The existing munitions storage capabilities on JB MDL meet the requirement for small arms deployment/training ammunition and other munitions required by the 108 WG.

##### *Anti-Terrorism/Force Protection*

Many of the 108 WG military facilities at JB MDL were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities

are modified, the New Jersey 108 WG would incorporate these standards to the maximum extent practicable.

### 3.2.3.2 Flight Safety

#### *Flight Safety Procedures*

Aircraft flight operations from McGuire Field are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures* 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, air refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

#### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight-hours (AFSEC 2012). There have been no Class A mishaps involving 108 WG aircraft at McGuire Field. The aircrew members at the 108 WG are highly experienced and have accumulated over 270,000 accident free hours (JB MDL 2013b).

#### *Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife-aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 108 WG has an effective, on-going BASH program through which information and assistance is freely shared between airfield users, the McGuire Field staff, and the local air traffic controllers. Serious BASH-related accidents within the immediate JB MDL area are unusual and have never resulted in a Class A mishap (JB MDL 2013c). JB MDL recorded a total of 94 minor BASH incidents and one deer mishap from 2008 to 2013. From this total, the 108 WG experienced 22, for an average of fewer than 2 per year (JB MDL 2013c).



### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Although fuel jettisoning is not practiced, airbases must establish jettison areas and procedures to minimize the impact of fuel jettisoning should it occur during an emergency situation. Ideally, jettison areas are established at altitudes above 20,000 feet, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources.

The primary emergency fuel jettison area for the 108 WG is the PREPI (charted, mandatory overwater reporting point) overwater intersection, 62 miles southeast of JB MDL. Aircrews enter a holding pattern east of PREPI intersection, flying 7-mile legs, with right hand turns, after notifying the appropriate Air Traffic Control facility of intentions to jettison fuel. Aircrews will request an altitude as high as practical, consistent with the nature of the in-flight emergency; however, 20,000 feet AGL or above is preferred (JB MDL 2009).

### **3.2.4 Soils and Water**

#### **3.2.4.1 Soils**

This area of New Jersey is within the Coastal Plain Province, a nearly level to rolling, dissected coastal plain that has been subjected to episodes of rising and falling sea levels. During low sea levels, eroding streams have dissected the area, leaving a series of terraces across the landscape (USDA 2006). The 108 WG installation is located on improved land, and relief ranges from 70 to 90 feet above MSL (JB MDL 2011).

The NRCS Soil Survey for Burlington County, New Jersey identifies eight individual soil types at the 108 WG installation. The following four soil types are located within the project study area:

*Adelphia-Urban land complex, 0 to 5 percent slopes:* This soil consists of strongly intermingled Urban land and Adelphia soil. Urban land consists of soil from cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is considered somewhat limited due to shrink-swell potential and depth to saturated zone (NRCS 2013b). Approximately 54 percent of the installation is composed of this soil type.

*Holmdel sandy loam, 0 to 2 percent slopes:* This soil is typically found on flats from loamy marine deposits. The rating class for building site development is considered somewhat limited

due to depth to saturated zone. In addition, this soil type is designated as Prime Farmland (NRCS 2013b). Approximately 4 percent of the installation is composed of this soil type.

*Sassafras sandy loam, 2 to 5 percent slopes:* This soil is typically found on knolls and low hills from loamy or gravelly marine deposits. There are no known limitations to site development associated with this soil type. In addition, this soil type is designated as Prime Farmland (NRCS 2013b). Approximately 18 percent of the installation is composed of this soil type.

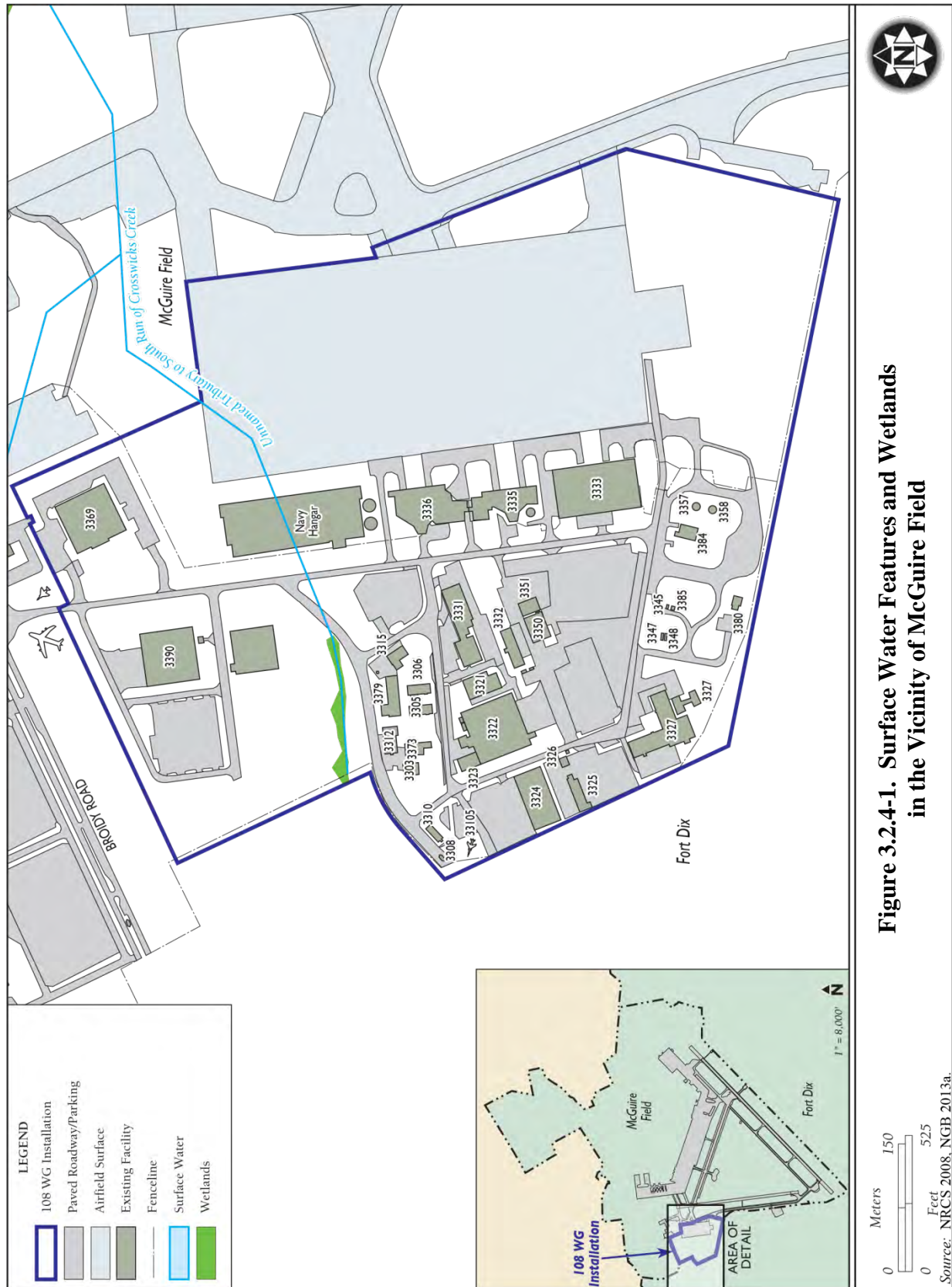
*Udorthents, wet substratum, 0 to 8 percent slopes:* This soil is found in areas that have been excavated and regraded or that have been filled with soil material and graded. This soil type is typically used for urban development or landfills. The suitability of the soils as a site for development varies. The rating class for building site development is not rated for this soil type (NRCS 2013b). Approximately 5 percent of the installation is composed of this soil type.

The remaining 19 percent is comprised of soil types that would not be affected.

#### 3.2.4.2 Surface Water

The 108 WG is located within the Middle Delaware-Musconetcong Watershed that encompasses over 3,480 square miles across New Jersey and Pennsylvania (USEPA 2013c). The Delaware is the longest un-dammed river in the U.S., extending 330 miles from the confluence of its east and west branches at Hancock, New York to the mouth of the Delaware Bay where it meets the Atlantic Ocean. Three-quarters of the Delaware River is now included in the National Wild and Scenic Rivers System. Sections of the Maurice River and the Musconetcong River in New Jersey also have been included in the national system (Delaware River Basin Commission 2013).

Surface water features within the vicinity of the JB MDL include Assiscunk Creek, Crosswicks Creek, Manapqua Brook, North Ruckles, Rancocas Creek, Ridgeway Brook, and the Toms River which drains southeast into Barnegat Bay (Figure 3.2.4-1). Three of these creeks are tributaries to the Delaware River: Assiscunk Creek, Crosswicks Creek, and Rancocas Creek. The western portion of the installation, including McGuire Field, is in the Rancocas Creek watershed. Smaller streams include Harris Branch, Elisha Branch, Paint Branch, and a number of unnamed tributaries (87<sup>th</sup> Civil Engineering Squadron 2012).



There are five stormwater outfalls on McGuire Field, Drainage Basins 1 through 5. Drainage basins containing industrial activities include Basins 1, 2, and 3. Drainage Basin 1 directs effluent into the South Run of Crosswicks Creek, while Drainage Basin 2 directs effluent to Jacks Run. Drainage Basin 3 discharges into Larkins Run of the North Branch of Rancocas Creek. Drainage Basin 4 directly discharges stormwater to Drainage Basin 5, which in turn discharges into the North Run of the Crosswicks Creek. The outfalls associated with industrial activity are regulated under a New Jersey Basic Industrial General Stormwater Permit (NJ0088315). The permit is administered by the NJDEP under the auspice of the USEPA (USAF School of Aerospace Medicine 2010).

#### 3.2.4.3 Groundwater

Groundwater in this area is part of the Northern Atlantic Coastal Plain aquifer system consisting of sedimentary deposits that range in age from Early Cretaceous to Holocene (U.S. Geological Survey [USGS] 1995a). The installation lies within the Kirkwood-Cohansey Aquifer present throughout the New Jersey coastal plain and covers approximately 3,000 square miles. The Cohansey Formation is mostly sand with minor lenses of silt, clay, and gravel. The Kirkwood Formation contains both sand and clay beds. The Kirkwood-Chansey water table is highly permeable due to the dominance of well-sorted medium- to coarse-grained sand (New Jersey Geological Survey 2009). Because of the high water table and permeable soils, the underlying groundwater resources are particularly sensitive to contamination making groundwater pollution prevention an important issue on the installation (87<sup>th</sup> Civil Engineering Squadron 2012).

Immediately below the Cohansey Formation is the Kirkwood Formation. Together, these two aquifers are estimated to contain as much as 17 trillion gallons of water. Underlying the Cohansey and Kirkwood Formations is the Potomac-Raritan-Magothy Formation. The installation's largest capacity well taps into the Potomac-Raritan-Magothy Aquifer at about 1,580 feet (87<sup>th</sup> Civil Engineering Squadron 2012).

#### 3.2.4.4 Floodplains

Per the FEMA Flood Insurance Rate Map for Burlington County, New Jersey, the 108 WG installation falls within an unmapped area, and no FEMA floodplains have been delineated within this area (FEMA 2013).

A floodplain study was prepared by the U.S. Army Corps of Engineers (USACE) for the Lakehurst area of JB MDL in 1989 and was later revised in 1990. Peak discharges for flood levels that occur with average intervals of 10, 50, 100, and 500 years were determined for Ridgeway Branch, North Ruckles Branch, Manapaqua Brook, Paint Branch, and Harris Branch.

Flood Insurance Studies have also been prepared by FEMA for the Township of Manchester and the Borough of Lakehurst. No floodplain studies have been conducted on the Fort Dix or McGuire areas of JB MDL (87<sup>th</sup> Civil Engineering Squadron 2012).

### **3.2.5 Biological Resources**

#### **3.2.5.1 Vegetation**

The 108 WG installation occurs within the Eastern Broadleaf Forest (Oceanic) Province. Vegetation in this region typically is characterized by a winter deciduous forest dominated by tall broadleaf trees (Bailey 1995). Within this region, the 108 WG installation lies within the Pinelands, a heavily forested area characterized by a mix of pitch pine (*Pinus rigida*), Virginia pine (*Pinus virginiana*), and short leaf pine (*Pinus echinata*). The majority of the JB MDL (69 percent) is forested with pine/oak or oak/pine forests with dense deciduous stands of red maple, sweet gum, and black gum in the wetland forests. However, the majority of McGuire Field and the 108 WG installation is either developed or comprised of turf and landscaped areas (87<sup>th</sup> Civil Engineering Squadron 2012, Headquarters AMC 2008).

#### **3.2.5.2 Wildlife**

Since 69 percent of JB MDL is forested, and the majority of the 108 WG installation is developed, wildlife present within the vicinity includes a mix of species highly adapted to developed and disturbed areas as well as species typical of native forests in the area. Common mammal species found on JB MDL include white-tailed deer, woodchuck (*Marmota marmox*), beaver (*Castor canadensis*), eastern cottontail rabbit (*Sylvilagus floridanus*), red squirrel (*Tamiasciurus hudsonicus*), white-footed mouse (*Peromyscus leucopus*), and meadow vole (*Microtus pennsylvanicus*) (87<sup>th</sup> Civil Engineering Squadron 2012, Headquarters AMC 2008).

Common reptilian and amphibian species observed within the vicinity of the installation include the milk snake (*Lampropeltis* spp.), northern black racer (*Coluber constrictor*), northern fence lizard (*Sceloporus undulates hyacinthus*), painted turtle (*Chrysemys picta*), American toad (*Bufo americanus*), Fowler's toad (*Bufo woodhousei fowleri*), and northern leopard frog (*Rana pipiens sphenoccephala*) (Headquarters AMC 2008).

The 108 WG installation is located within the Atlantic Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found within the 108 WG installation or its vicinity are protected under the MBTA. Grassland areas on the installation, as well as those grassland areas near the airfield, provide habitat for birds such as the Upland Sandpiper (*Bartramia longicauda*), Grasshopper Sparrow (*Ammodramus savannarum*), and Savannah Sparrow (*Passerculus sandwichensis*). The ecotone between grassland and

forested ecosystems provides excellent habitat for bird species such as the Gray Catbird (*Dumetella carolinensis*), Yellow Warbler (*Dendroica petechia*), Northern Cardinal (*Cardinalis cardinalis*), Indigo Bunting (*Passerina cyanea*), Rufous-sided Towhee (*Pipilo erythrophthalmus*), Song Sparrow (*Melospiza melodia*), Brown-headed Cowbird (*Molothrus ater*), and American Goldfinch (*Carduelis tristis*). Common birds found in the wetlands areas include the Great Blue Heron (*Ardea herodias*), Northern Rough-winged Willow Flycatcher (*Empidonax traillii*), Eastern Kingbird (*Tyrannus tyrannus*), Cedar Waxwing (*Bombycilla cedrorum*), and Red-winged Blackbird (*Agelaius phoeniceus*). Common birds that could be found in the upland forest areas include the Downy Woodpecker (*Picoides pubescens*), Eastern Wood-pewee (*Contopus virens*), Carolina Chickadee (*Parus carolinensis*), Pine Warbler (*Dendroica pinus*) and Chipping Sparrow (*Spizella passerina*). Common raptor species that may be found include the American Kestrel (*Falco sparverius*), Red-tailed Hawk (*Buteo jamaicensis*), Great Horned Owl (*Bubo virginianus*), and the Turkey Vulture (*Cathartes aura*) (Headquarters AMC 2008).

### 3.2.5.3 Special Status Species

Appendix E lists federally threatened, endangered, candidate, and state listed species observed or potentially occurring in the vicinity of JB MDL. No federally listed species have been observed on McGuire Field or the 108 WG installation. Three federally listed plant species and one candidate plant species have been observed within the vicinity of JB MDL, but have not been observed within the 108 WG installation. An additional 30 state listed species have been observed on JB MDL, while 6 state listed species have been observed within McGuire Field (American Kestrel, Grasshopper Sparrow, Northern Harrier, Pie-billed Grebe, Savannah Sparrow, and Upland Sandpiper). There is no critical habitat located on JB MDL (87th Civil Engineer Squadron 2012, Air Mobility Command 2008, New Jersey Department of Environmental Protection 2013).

### 3.2.5.4 Wetlands

Approximately 21 percent (8,791 acres) of JB MDL is comprised of emergent, scrub-shrub, and forested wetlands (Figure 3.2.4-1). Approximately 900 acres occur at Lakehurst, 238 acres occur at McGuire, and 7,653 acres occur at Dix (87th Civil Engineer Squadron 2012). There are no wetlands located within the vicinity of the construction projects under Alternative #2.

### **3.2.6 Cultural Resources**

#### **3.2.6.1 Archaeological Resources**

A survey of cultural resources including archaeological resources and pre-Cold War era buildings and structures was completed in 1995 for McGuire AFB (now McGuire Field) (Headquarters AMC 1995). This survey included all areas within the 1995 boundary of McGuire AFB and all off-base facilities, except for a 20-acre parcel of leased land (the Boeing Michigan Aerospace Research Center [BOMARC] missile site at Fort Dix). Areas that were highly disturbed from construction or ERP sites were excluded from the survey and five previously designated areas of archaeological sensitivity were included based on geomorphology, the history of land disturbance on base, vegetation, and prehistoric and historic site distribution patterns on surrounding lands. A sixth area of archaeological sensitivity was added in the North Run area of the base due to the potential for buried prehistoric remains in undisturbed alluvial deposits and on locations of historic buildings on historic maps (Headquarters AMC 1995). This survey resulted in the recordation of 11 historic archaeological sites. Following further testing in 1998, three of these sites (site numbers 28BU458, 28BU459, and 28BU473) were determined eligible for listing in the NRHP. The three sites include two mid-eighteenth to early-nineteenth century agricultural households associated with a nearby mill site, which was reported but not identified; and one mid-eighteenth to early nineteenth century domestic site associated with the historic village of Pointville. The remaining eight sites were determined not eligible for listing in the NRHP (Duryee 2013, 87<sup>th</sup> Civil Engineering Squadron 2013, Headquarters AMC 2008).

#### **3.2.6.2 Architectural Resources**

The 1995 survey of McGuire AFB included an inventory and NRHP evaluation of all buildings and structures constructed before 1947, the BOMARC missile complex at Fort Dix, and the 1956 Semi-Automatic Ground Environment complex. Both the Semi-Automatic Ground Environment complex and the BOMARC site were recommended as NRHP-eligible Cold War era resources under the criteria for exceptional significance (Criterion Consideration G). Additionally, as a result of this survey, 18 World War II era temporary structures were found to be eligible for listing in the NRHP. The structures are considered eligible; however, per the 1986 Memorandum of Agreement between the DOD, the Advisory Council on Historic Preservation, and the National Conference of SHPOs, these structures could be demolished without further Section 106 review. All other buildings were found not eligible for listing in the NRHP (Headquarters AMC 2008).

A follow-up survey in 1996 included all Cold War era buildings, which were all less than 50 years old at the time. No buildings were recommended eligible to the NRHP under criteria for exceptional significance (Criterion Consideration G) (Headquarters AMC 1995). In 2013, a



survey was completed for pre-1967 resources that have since become 50 years old. Hangar 3322, built in 1957, was evaluated for NRHP eligibility during this survey. The results of the inventory indicated that Hangar 3322 is not eligible for listing in the NRHP (JB MDL 2013d).

### **3.2.6.3 Traditional Resources**

McGuire Field contains no known traditional resources; however, three federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified: Delaware Nation, Delaware Tribe of Indians, and Stockbridge-Munsee Community. JB MDL has completed consultation with the Delaware Nation and Delaware Tribe of Indians, who were identified as potentially having an interest in JB MDL. In the past, the Stockbridge-Munsee Community was invited by JB MDL to participate in government-to-government consultation, but declined interest in being further consulted (87<sup>th</sup> Civil Engineering Squadron 2013, Duryee 2013).

### **3.2.7 Land Use**

JB MDL is located in central Burlington County, adjacent to and southeast of the Borough of Wrightstown and within New Hanover Township. Land use within those portions of Burlington County adjacent to McGuire Field is a mix of residential and commercial to the north and south, with several open and agricultural areas adjacent to the western boundary of the installation. The land use in Ocean County northeast of JB MDL is similar to the existing land use in Burlington County that is north of the airfield (Figure 3.2.7-1).

Aircraft noise and potential hazards from aircraft operations at McGuire Field currently are incompatible with some off-installation land use. Since JB MDL surrounds McGuire Field to the east, south, and west, the impact of airfield activities on adjacent communities is limited. Higher DNL contours and APZs associated with the runways at McGuire Field do not extend off installation. (Detailed descriptions of APZs can be found in Section A.1.3 of Appendix A.)

An updated noise study in support of the AICUZ program was completed for JB MDL in 2013 and the JB MDL Joint Land Use Study was completed in 2009. These documents identify incompatible land uses and supports compatible land use planning in the vicinity of JB MDL. Both Burlington and Ocean Counties have supported the AICUZ and Joint Land Use Study programs in their on-going planning and zoning decisions to reduce land use conflicts and ensure future land uses are compatible (JB MDL 2013a, DoD 2009b).

Currently, aircraft noise from JB MDL exposes approximately 332 acres of off-JB MDL areas of land zoned as Recreational, Agricultural, Commercial, Residential, Open Space, and Other to

noise levels between 65 dB and 75 dB DNL. Figure 3.2.7-1 shows an overlay of the baseline DNL contours onto a map displaying the existing land use in the vicinity of JB MDL.

### **3.2.8 Infrastructure and Transportation**

#### **3.2.8.1 Potable Water System**

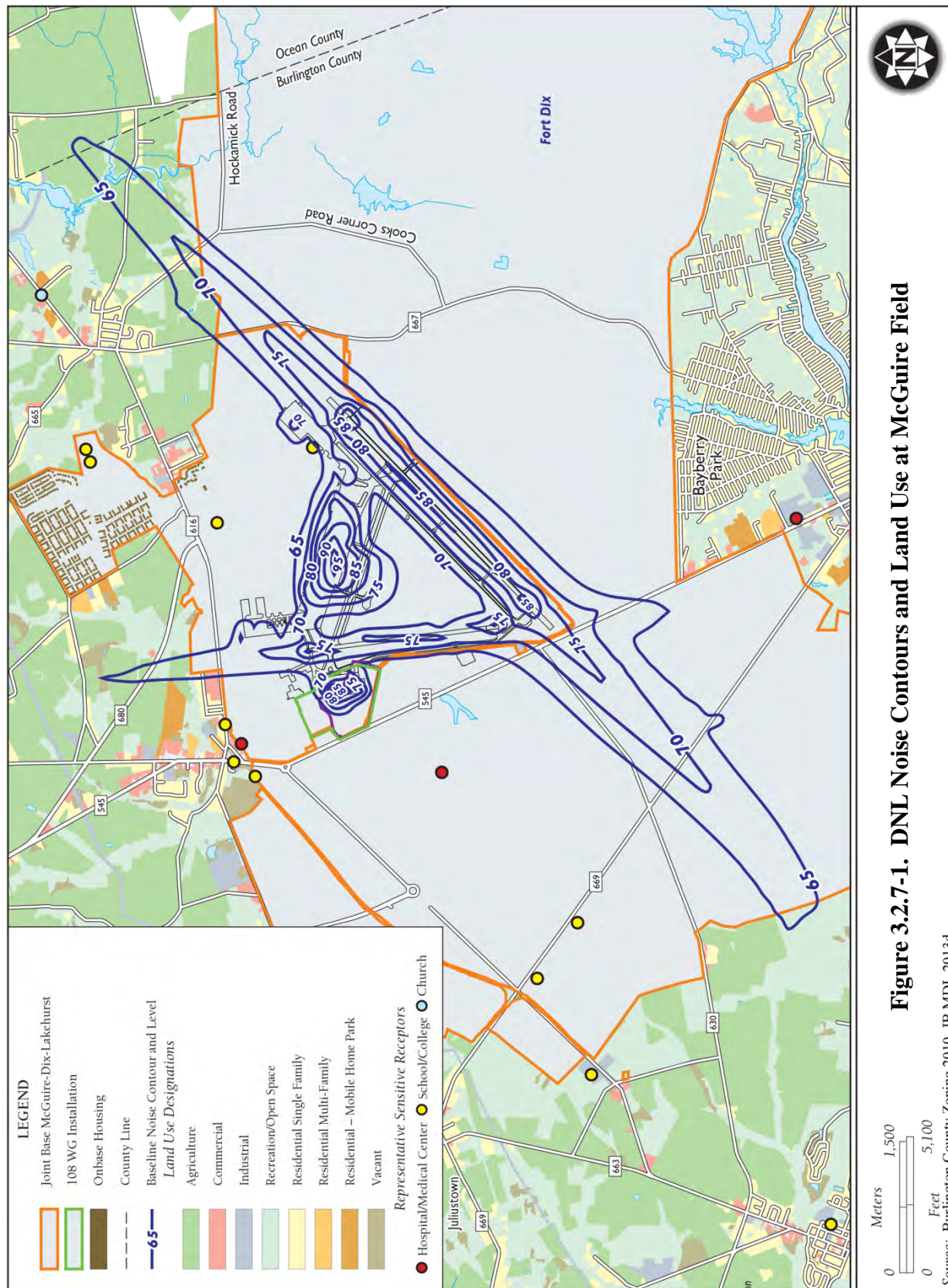
Potable water for the 108 WG installation is supplied by four wells drawn from the Potomac-Raritan-Magothy aquifer. McGuire Field has a water allocation permit that entitles the installation to use 450.75 million gallons of water per year with capacity of 4.03 million gallons per day. Average daily water usage averages between 1 and 1.4 million gallons per day. Water is treated at each well and temporarily stored in 25,000-gallon ASTs, then pumped to a single elevated 750,000-gallon water storage tank by the McGuire Field Water Department (Headquarters AMC 2008, 108 WG 2012).

#### **3.2.8.2 Wastewater**

The 108 WG installation generates wastewater from sanitary, stormwater, and industrial processes, including OWS discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 108 WG installation is conveyed into the Fort Dix tertiary wastewater treatment plant. The facility has a capacity of 4.6 million gallons per day but typically receives 1.0 to 1.5 million gallons of wastewater per day from McGuire Field (Headquarters AMC 2008).

#### **3.2.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 108 WG SWPPP (2010), the 108 WG installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.2.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.



#### 3.2.8.4 Electrical and Natural Gas Systems

Electricity is supplied to the 108 WG installation by Jersey Central Power & Light via a single 34.5-kilovolt switching station and aboveground lines. Natural gas is supplied by Public Service Electric and Gas Company via two separate metered main lines. Electricity consumption for CY 2012 at the 108 WG installation was 6,071 megawatt hours. Natural gas consumption for CY 2012 at the 108 WG installation was 34,609 thousand cubic feet (108 WG 2012).

#### 3.2.8.5 Solid Waste Management

Municipal solid waste at the 108 WG installation is managed in accordance with the McGuire AFB Solid Waste Management Plan (USAF 2002) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 108 WG installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These non-hazardous solid wastes are collected in dumpsters located throughout the 108 WG installation and transported to the Burlington County Resource Recovery Complex in Mansfield and Florence Townships, New Jersey (USAF 2002).

#### 3.2.8.6 Transportation

The 108 WG installation is located within close proximity to several major highways. The New Jersey Turnpike I-95), a major north/south highway, is less than 10 miles to the west of the installation. State Route (SR) 68 serves as the primary access to the installation from the New Jersey Turnpike. The 108 WG installation can be accessed through McGuire Field or through Fort Dix at Broidy Road Gate (Gate 9) or the NJ ANG gate (Gate 5). Wrightstown-Cookstown Road provides access to the main gate of McGuire Field as well as a secondary entrance to the east (Headquarters AMC 2008).

### 3.2.9 Hazardous Materials and Waste

#### 3.2.9.1 Hazardous Materials

Hazardous materials are used at the 108 WG installation for aircraft operations support and maintenance, including POL management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight simulation. Types of hazardous substances found on the 108 WG installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (108 WG 2011b).

There are currently 14 regulated USTs and 140 ASTs on McGuire Field containing jet fuel, diesel, and motor gasoline (Headquarters AMC 2008). Of these, the 108 WG has no regulated USTs and five ASTs on the installation.

#### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 108 WG installation in 2007. ACM identified in the insulation, floor tiles, and mastic were found in 18 buildings (Buildings/Hangers 1811, 3302, 3303, 3305, 3306, 3310, 3312, 3315, 3321, 3322, 3323, 3325, 3326, 3331, 3332, 3369, 3373, and 3379) (NJ ANG 2007).

A LBP survey has not been conducted at the 108 WG installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation.

The 108 WG does not maintain, operate, or own any PCB equipment or PCB-contaminated equipment and the subject property is considered PCB-free (108 WG 2011b).

#### 3.2.9.2 Hazardous Waste Management

McGuire AFB Integrated Contingency Plan for Oil Spill Prevention and Response Plan incorporates the requirements for a *Spill Prevention Control and Countermeasure Plan* and a *Facility Response Plan* (87<sup>th</sup> Air Base Wing 2009). It contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (87<sup>th</sup> Air Base Wing 2009). The 108 WG Hazardous Waste Management plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (108 WG 2011b).

The 108 WG hazardous waste disposal activities are covered under the McGuire Field USEPA Identification Number NJ2571824018, which is regulated as a Large Quantity Generator of hazardous waste. A hazardous waste generation point is where the waste is initially created or generated. An SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are seven SAPs (where a waste is initially accumulated) identified at the 108 WG installation in Buildings/Hangars 3324, 3325, 3331, 3333, 3336, 3379, and 3384. The 108 WG installation CAP is located on McGuire Field in Building 2310 (108 WG 2013c).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. OWSs located on the 108 WG installation primarily receive discharge from floor drains in maintenance areas.

### 3.2.9.3 Environmental Restoration Program

There are currently 42 ERP sites on McGuire Field, with 1 of these sites (SS-39) located on the 108 WG installation. In addition, there is currently a contaminated area located in the POL facility on the 108 WG installation that has recently been discovered and is currently being investigated. Table 3.2.9-1 provides details for each of these sites on the 108 WG installation and Figure 3.2.9-1 shows the locations. The exact boundaries for the Defense Logistics Agency (DLA) site is still being investigated. Therefore, the area shown on the map is only a general location.

**Table 3.2.9-1. ERP Sites within the 108 WG Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
SS-39	Site SS-39 includes several former and current industrial buildings at which aircraft maintenance, aircraft washing, and fuel cell repairs currently and historically were performed. It includes Buildings 3321, 3322, 3325, and 3350. A portion of Site SS-39 is currently an aircraft parking apron.	Remedial Investigation
DLA Site	Recently an area located within the POL facility on the 108 WG installation was discovered to have low levels of jet fuel and other fuel types. This site is being managed by the Defense Logistics Agency (DLA) and is still in the discovery phase. The extent and the source of the contamination is still unknown at this time. Soil and groundwater investigations are ongoing	Preliminary Assessment/Site Investigation

*Source:* Air Force Center for Engineering and the Environment 2012, 108 WG 2013c







### 3.2.10 Socioeconomics

#### 3.2.10.1 Population and Employment

##### *Population*

JB MDL is located approximately 18 miles southeast of Trenton, New Jersey in Ocean and Burlington counties. Current population data and estimates for the state of New Jersey, Burlington and Ocean counties, and New Hanover, North Hanover, and Pemberton Townships are provided in Table 3.2.10-1. From 1990 to 2010, Burlington County's population increased by 53,668, an increase of approximately 14 percent. Ocean County grew by 143,364 between 1990 and 2010, an increase of approximately 33 percent (USCB 1990b, 2000b, 2010b).

**Table 3.2.10-1. Population Growth within the Vicinity of JB MDL**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
New Jersey	7,730,188	8,414,350	8,791,894
Burlington County	395,066	423,394	448,734
Ocean County	433,203	510,916	576,567
New Hanover Township	9,546	9,744	7,385
North Hanover Township	9,994	7,347	7,678
Pemberton Township	31,342	28,691	27,912
Plumsted Township	2,089	7,275	8,421
Wrightstown Borough	3,843	748	802

Source: USCB 1990b, 2000b, 2010b.

The 108 WG currently supports a workforce authorization of 1,329, including 416 full-time and 913 part-time personnel (see Table 2.3-12).

##### *Employment and Earnings*

Table 3.2.10-2 presents total labor force and employment rates for New Jersey; Burlington and Ocean counties; New Hanover, North Hanover, Pemberton and Plumsted Townships; and Wrightstown Borough. Based on 2007-2011 ACS 5-year estimates, there were 244,032 persons in the labor force (able to work) and 224,720 employed within Burlington County, resulting in an unemployment rate of approximately 8 percent. Labor force estimates for Ocean County include 267,716 persons, with 243,182 employed, resulting in an unemployment rate of approximately 9 percent. Top employment industries in Burlington County include 1) educational services, and health care and social assistance; 2) professional, scientific, and management, and administrative and waste management services; and 3) retail trade (USCB 2011b). Principal employers include Virtua Memorial Hospital of Burlington County, Lockheed Martin, Burlington Coat Factory, Viking Yacht Company, and PHH Mortgage (Burlington County 2010). Top employment industries in Ocean County include 1) educational services, and health care and social assistance; 2) retail; and 3) professional, scientific, and management, and administrative and waste

management services (USCB 2011b). Principal employers include Saint Barnabas Health Care System, Six Flags theme parks, Naval Engineering Station-Naval Air Warfare Center, Toms River Regional School System, and Ocean County government (Ocean County 2008).

**Table 3.2.10-2. Employment Data (2011) within the Vicinity of JB MDL**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
New Jersey	4,633,565	4,230,814	402,751	8.7
Burlington County	244,032	224,720	19,312	7.9
Ocean County	267,716	243,182	24,534	9.2
New Hanover Township	2,082	1,984	98	4.7
North Hanover Township	4,030	3,641	389	9.7
Pemberton Township	15,079	13,465	1,614	10.7
Plumsted Township	4,731	4,391	340	7.2
Wrightstown Borough	467	432	35	7.5

*Note:* Employment numbers include individuals in the Armed Forces.

*Source:* USCB 2011b.

### 3.2.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 80,547 students were enrolled in schools from Kindergarten through Grade 12 in Burlington County. In Ocean County, 95,936 students were enrolled in schools from Kindergarten through Grade 12 (USCB 2011b).

### 3.2.10.3 Housing

In 2010, the number of housing units in Burlington County was 175,615, with a vacancy rate of 5.3 percent. In Ocean County in 2010, there were a total of 278,052 housing units with a vacancy rate of approximately 21 percent (USCB 2010b). Currently, approximately 20 percent of active duty personnel live on-base (108 WG 2013c).

## 3.2.11 Environmental Justice and the Protection of Children

### 3.2.11.1 Minority and Low-Income Populations

Table 3.2.11-1 displays the minority, low-income, and children under age 18 within the state of New Jersey, as well as the counties, boroughs, and townships within the vicinity of McGuire Field. Approximately 26 percent of the population of Burlington County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 31 percent for the state of New Jersey. Ocean County has a lower proportion of minorities (approximately 9 percent) than Burlington County or the state (USCB 2010c).

The percentage of population living below the poverty level for the state of New Jersey (approximately 9 percent) is higher than Burlington County (approximately 5 percent), and similar to Ocean County (approximately 10 percent) (USCB 2010b).

**Table 3.2.11-1. Population within the Vicinity of JB MDL<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
New Jersey	8,791,894	2,762,646	31.6	826,438	9.4	2,065,214	23.5
Burlington County	448,734	117,392	26.2	23,783	5.3	104,243	23.2
Ocean County	576,567	51,990	9.0	54,774	9.5	134,919	23.4
New Hanover Township	7,385	3,393	45.9	258	3.5	586	7.9
North Hanover Township	7,678	1,522	19.8	499	6.5	2,266	29.5
Pemberton Township	27,912	9,064	32.5	2,735	9.8	6,869	24.6
Plumsted Township	8,421	489	5.8	1,322	15.7	2,207	26.2
Wrightstown Borough	802	422	52.6	36	4.5	216	26.9

- Note:*
1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 American Community Survey 5-Year Estimates.
  2. The percentage of low-income persons is calculated as a percentage of all persons for whom the Bureau of the Census determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010b, 2011c.

Table 3.2.11-2 displays the total population, total minority population, percentage minority, total low-income population, and low-income percentages for the vicinity of JB MDL with the baseline DNL greater than 65 dB.

**Table 3.2.11-2. Population within Baseline Noise Contours, JB MDL<sup>1</sup>**

<i>Noise Contour</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>
65-70	54	8	15	3	6
70-75	26	4	15	1	4
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>80</b>	<b>12</b>	<b>15</b>	<b>4</b>	<b>5</b>

- Note:*
1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.
  2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Sources:* USCB 2010c, 2011c.

In the area surrounding JB MDL, approximately 80 people were estimated to be affected by existing DNL between 65 and 75 dB. Out of that total, approximately 30 percent are considered to be minorities and 5 percent to be low-income. The percentage of minority populations currently affected by noise is greater than the approximate 26 percent minority average in Burlington County and greater than the approximate 9 percent minority average in Ocean County. The percentage of low-income populations in the area surrounding JB MDL affected by the DNL greater than 65 dB is approximately the same as the 5 and slightly lower than the 10 percent low-income average in Burlington and Ocean counties (respectively).

#### 3.2.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Burlington County was approximately 104,243 (approximately 23 percent of the population). In 2010, the number of children under the age of 18 living in Ocean County was approximately 134,919 (approximately 23 percent of the population) (Table 3.2.11-1). The state of New Jersey has a similar percentage population of children compared to the counties (approximately 24 percent). There are no on-installation housing or facilities for children located at the 108 WG installation. Currently, there are no Kindergarten through Grade 12 off-installation schools that are exposed to aircraft DNL of 65 dB or above; however, there is one child development center that is currently located within the 65 dB contour.

### **3.3 PEASE AIR NATIONAL GUARD STATION**

Pease ANGS, home of the 157 ARW of the NH ANG, is located in Portsmouth and Newington, New Hampshire, approximately 55 miles north of Boston, Massachusetts. The 157 ARW base is situated on the northeast side of the Portsmouth IAP at Pease, which is owned and operated by PDA.

#### **3.3.1 Noise**

To evaluate noise impacts in the vicinity of a military installation located at a commercial airport with a published FAR Part 150 Airport Noise Compatibility Study, the USAF allows for use of the FAA's INM to generate DNL noise contours. The Airport Authority under the FAA uses INM for generating noise contours and for Portsmouth IAP, the FAA's INM was used. For more detailed information on the noise modeling methods, see Appendix A, Section A.1.2.

##### **3.3.1.1 Baseline Operations**

In 1996, the PDA published a FAR Part 150 Airport Noise Compatibility study for Portsmouth IAP. This study is currently being updated but was not available to use for this EIS. The 1996 INM aircraft operational data was updated in 2008 in support of an Environmental Assessment prepared to support construction projects at Pease ANGS (157 ARW 2008a). This data for the KC-135 was updated to reflect the actual KC-135 2012 aircraft operations and is used as the baseline for this analysis.

Based on aircraft operations data validated in March 2013, approximately 37,016 total aircraft operations occurred at Portsmouth IAP during the 12-month period ending October 2012 (Pomeroy 2013). An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. Table 3.3.1-1 summarizes the frequency of aircraft operations for the Portsmouth IAP airfield based on information provided by base staff, flying organizations, and air traffic control personnel. The majority of aircraft traffic includes air cargo, commercial regional jets (air taxi), and larger commercial aircraft and other based military aircraft, along with based ANG KC-135 aircraft. Although the number of aircraft operations at an installation varies from day to day, for Portsmouth IAP, operations are calculated for an AAD, meaning that yearly operations are averaged across all 365 days of the year. Table 3.3.1-1 reflects a total of approximately 102 aircraft operations on an AAD (37,410 divided by 365 days). Approximately 4 percent of the total operations at Portsmouth IAP occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.3.1-1. Current Portsmouth IAP Annual Aircraft Operations**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-135	2,939	131	2,939	131	5,878	262	6,140
Other Aircraft <sup>3</sup>	14,541	1,094	14,853	782	29,394	1,876	31,270
<b>Total</b>	<b>17,480</b>	<b>1,225</b>	<b>17,792</b>	<b>913</b>	<b>35,272</b>	<b>2,138</b>	<b>37,410</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: Lear 25, 35, Airbus 319.

Source: 157 ARW 2013a.

Based on the 2012 baseline data, the 157 ARW KC-135 aircraft flew a total of 6,140 annual airfield operations, or an average of 17 airfield operations a day. Approximately 4 percent of the total KC-135 operations occur during environmental night. Approximately 16 percent of total operations at Portsmouth IAP are accomplished by the 157 ARW KC-135 aircraft.

### 3.3.1.2 Runway and Flight Profiles

Portsmouth IAP aircraft use straight out departures, straight in approaches, IFR or radar closed patterns, and VFR closed patterns as the basic flight patterns for training flights and local arrival and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise*.

### 3.3.1.3 Existing Noise Environment

Noise contours developed for baseline conditions at Portsmouth IAP are shown in Figure 3.3.1-1. The acreage within each DNL contour on Portsmouth IAP property is shown in Table 3.3.1-2; no off-airport noise levels greater than 65 dB DNL occur.

**Table 3.3.1-2. Acres within Baseline Noise Contours, Portsmouth IAP**

<i>Noise Level (dB)</i>	<i>On-Airport (acres)</i>	<i>Off-Airport (acres)</i>	<i>Total (acres)</i>
65-70	237	0	237
70-75	81	0	81
75-80	16	0	16
80-85	1	0	1
Greater than 85	0	0	0
<b>Total</b>	<b>334</b>	<b>0</b>	<b>334</b>

Note: Numbers may not add precisely due to rounding.  
 dB = decibel







### *Potential Hearing Loss*

As shown in Table 3.3.1-2, there is no property off the Portsmouth IAP that falls within the baseline 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### **3.3.1.4 Portsmouth International Airport Noise Abatement Procedures**

Portsmouth IAP has published certain restrictions on flying activities that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations. The restrictions are published on aeronautical charts and apply to both military and civilian aircraft (SkyVector 2013a). The restrictions include guidance for noise abatement procedures for the airfield including, but not limited to, requiring aircraft departing the airport to maintain runway heading to 1,100 feet MSL prior to turning and not allowing aircraft to practice low approaches or touch-and-go landings between the hours of 11:00 p.m. and 7:00 a.m. for local based aircraft and from 9:00 p.m. to 7:00 a.m. for transient aircraft or before 12:00 on Sundays for all aircraft. The noise abatement procedures are considered voluntary for military aircraft and can be waived based on mission requirements (Smith 2013a).

#### **3.3.1.5 Pease Air National Guard Station Noise Complaints Procedures**

Currently, all noise complaints are handled through the PDA noise complaint hotline or website. Thirty-one noise complaints were logged between April 10, 2012 and December 12, 2012 (nine of the complaints received were from one specific individual, five complaints from another specific individual, and the rest were from others). Sherman Village, a housing development, lies just outside of the 65 dB DNL noise contour; complaints received from that area are typically associated with helicopter activity (PDA 2012a, 2012b).

### **3.3.2 Air Quality**

#### **3.3.2.1 Regulatory Setting**

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The New Hampshire Department of Environmental Services is the agency responsible for the regulation of air quality within the state of New Hampshire. The state of New Hampshire regulates air quality through the New Hampshire Code of Administrative Rules, ENV-A 100 to ENV-A 4805. The state of New Hampshire has adopted the NAAQS and has not adopted separate state air quality standards. The NAAQS are summarized in Table 3.3.2-1.

**Table 3.3.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	<b>NATIONAL STANDARDS<sup>a</sup></b>	
		<i>Primary<sup>b,c</sup></i>	<i>Secondary<sup>b,d</sup></i>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary

Notes: a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide.

Source: USEPA 2012.

Pease ANG, home of the 157 ARW of the NH ANG, is located in Portsmouth and Newington, New Hampshire, approximately 55 miles north of Boston, Massachusetts. The USEPA had previously classified the Boston-Manchester-Portsmouth area as a moderate nonattainment area for the 1997 O<sub>3</sub> standard. On January 31, 2013, the USEPA formally redesignated southeastern New Hampshire as an attainment area for the 1997 O<sub>3</sub> standard. The region is therefore considered a maintenance area for O<sub>3</sub>. The region is designated attainment/unclassified area for all other criteria pollutants. The Proposed Action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the classification for the region as a maintenance area, the *de minimis* emission thresholds for the General Conformity Rule for ozone precursors (NO<sub>x</sub> and VOCs) is 100 tpy.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

### 3.3.2.2 Climate and Meteorology

Portsmouth, New Hampshire has a humid continental climate with warm summers and no dry season. The area within 25 miles of this station is covered by forests (62 percent), oceans and seas (34 percent), and lakes and rivers (2 percent). Over the course of a year, the temperature typically varies from 17°F to 81°F and is rarely below 3°F or above 89°F. The warm season lasts from June 4 to September 15 with an average daily high temperature above 71°F. The highest temperatures occur in July, with an average high of 81°F and low of 63°F. The cold season lasts from December 5 to March 13 with an average daily high temperature below 42°F. The coldest temperatures occur in January, with an average low of 17°F and high of 32°F (Northeast Regional Climate Center 2013b).

The wind is most often out of the west (24 percent of the time), north west (14 percent of the time), and south west (11 percent of the time). Over the course of the year, typical wind speeds vary from 0 miles per hour to 16 miles per hour (calm to moderate breeze), rarely exceeding 25 miles per hour (strong breeze). Winds are generally highest during the springtime (Northeast Regional Climate Center 2013b).

### 3.3.2.3 Regional and Local Air Pollutant Sources

The 157 ARW is based on the northeast side of Portsmouth IAP, approximately 1 mile from Portsmouth, New Hampshire. The surrounding area is developed to the east and south of the airport. To the west of the airport lies the Great Bay National Wildlife Refuge and Great Bay.

The USEPA's National Emissions Inventory includes data for the year 2008 for Rockingham County. Table 3.3.2-2 summarizes the regional emissions (stationary, area-wide, and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.3.2-2. Regional Emissions for Rockingham County, New Hampshire**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	5,780	1,042	2,628	6,982	3,888	3,696
Area-Wide Source	4,368	3,521	159	8	4,055	981
Mobile Sources	50,746	5,226	8,648	587	534	421
<b>Total</b>	<b>60,894</b>	<b>9,789</b>	<b>11,435</b>	<b>7,577</b>	<b>8,477</b>	<b>5,098</b>

*Notes:* Numbers may not add precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.3.2.4 Baseline Air Quality

Representative background air monitoring data for the 157 ARW for the period 2008-2012 are shown in Table 3.3.2-3. The closest monitoring stations to Portsmouth IAP include the monitoring station in Portsmouth itself, along with monitoring stations in Nashua and Manchester.

As shown in Table 3.3.2-3, the area has experienced one to two O<sub>3</sub> exceedances annually during the recent 5-year period. The data show that the area did not experience violations of other NAAQS.

**Table 3.3.2-3. Ambient Air Monitoring Data for the Portsmouth Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.079	0.076	0.081	0.086	0.083
Days above federal standard (0.075 ppm)	1	1	2	1	1
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	33.2	29	26.3	14	24.3
Days above federal standard (35 µg/m <sup>3</sup> )	0	0	0	0	0
Annual Average value (µg/m <sup>3</sup> )	8.2	7.1	7.4	6.5	7.7
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	61	57	60	59	59
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	9.4	3.3	3.4	2.6	0.6
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	4.4	2.3	2.4	2.4	0.6
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	NA	0.051	0.050	0.012	0.011
98 <sup>th</sup> Percentile (ppm)	NA	0.047	0.042	0.010	0.010
Days above federal standard (0.100 ppm)	NA	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.085	0.073	0.048	0.070	0.034
99 <sup>th</sup> Percentile (ppm)	0.062	0.042	0.045	0.037	0.021
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	0	0
Peak 24-hour value (ppm)	0.025	0.016	0.015	0.014	0.006

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.3.2.5 157<sup>th</sup> Air Refueling Wing Emissions

The 157 ARW currently flies and maintains eight KC-135 refueler aircraft and one backup inventory KC-135 to support its air refueling mission. The primary support operations performed at the 157 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance (157 ARW 2005, 2013c).

Emissions for the 157 ARW have been quantified in the *Final 2009 Air Emissions Inventory* (157 ARW 2010). The inventory evaluated the emissions from the 157 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 50 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, 100 tpy for all other criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs (157 ARW 2010).

The 157 ARW operates under General State Permit GSP-EG-0370 which includes nine emergency generators and one emergency fire pump. The permit contains operational limits such that its potential emissions are restricted below the Title V major source thresholds. The 2009 Air Emissions Inventory demonstrates that the installation operates in compliance with the limits in its permit, and total base-wide potential emissions from stationary sources are below the major source thresholds (157 ARW 2010).

Stationary source emissions at the 157 ARW include emissions from natural gas, diesel, and propane-fired heating units, internal combustion engines, fuel tanks, a gasoline service station, and various minor sources such as solvent use, deicing, and welding. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 157 ARW installation considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources, and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #3, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3-13, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.3.2-4.

**Table 3.3.2-4. 157 ARW Baseline Emissions at Pease ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	2.41	36.29	73.94	6.29	0.33	0.33	17,480
AGE	0.00	0.01	0.07	0.00	0.00	0.00	1,588
Engine Testing	0.10	1.47	0.40	0.06	0.01	0.01	174
POVs	1.11	19.06	0.91	0.01	0.04	0.02	597
<b>Total Baseline Emissions</b>	<b>3.62</b>	<b>56.84</b>	<b>75.32</b>	<b>6.36</b>	<b>0.37</b>	<b>0.35</b>	<b>19,839</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* 157 ARW 2010.

### 3.3.3 Safety

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Portsmouth IAP.

#### 3.3.3.1 Ground Safety

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 157 ARW are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by AFOSH requirements. ARFF services at Pease ANGS are available on a 24-hour basis. Upon notification of an in-flight or ground emergency, the crash and rescue services personnel would coordinate emergency services. ARFF equipment and personnel at Pease ANGS meet USAF requirements (Headquarters AMC and NGB 2013a).

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas. The city of Portsmouth, New Hampshire utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations. Details of development and land use in the Portsmouth IAP vicinity are included in Section 3.3.7, *Land Use*.

##### *Explosive Safety*

The 157 ARW uses a small range of munitions required for performance of their mission. The existing munitions storage capabilities on Pease ANGS meet the requirement for small arms deployment/training ammunition and other munitions required by the 157 ARW. The munitions storage complex consists of five earth-covered igloos of 208 SF each (total storage area of 1,040 SF), with a 192 SF receipt/inspection facility. Additional storage was established in the Squadron Operations building, which provides additional square footage for aircrew flight equipment assets. Additionally, a 2013 Memorandum of Agreement with Westover Air Reserve Base is in place augmenting munitions storage capacity.



### *Anti-Terrorism/Force Protection*

Many of the 157 ARW military facilities at Pease ANGS were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the 157 ARW would incorporate these standards to the maximum extent practicable.

#### 3.3.3.2 Flight Safety

##### *Flight Safety Procedures*

Aircraft flight operations from Pease ANGS are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures*, 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

##### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight-hours (AFSEC 2012). The 157 ARW has not experienced a Class A mishap in the past 10 years (Pease ANGS 2013).

##### *Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife-aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 157 ARW of the NH ANG has an effective, on-going BASH program through which information and assistance is freely shared between airfield users, the Portsmouth IAP staff, and the local air traffic controllers. The airport also has an aggressive program with the USDA, including continual monitoring within the fenceline to minimize BASH potential. The airport has an excellent track record of managing BASH issues and has successfully included the management at the off-airport landfill property. Serious BASH-related accidents within the

immediate Portsmouth IAP area are rare and have never resulted in a Class A mishap (Pease ANG 2013). The 157 ARW has recorded 98 minor BASH incidents from 2008 to 2013, with an average of fewer than 20 per year (Pease ANG 2013).

### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. In accordance with AFIs, Pease ANG has established local procedures for gross weight adjustments; fuel jettison areas are over the Atlantic Ocean and above 20,000 feet AGL. 157 ARW aircraft jettisoned fuel once in 2012 and twice in 2011 (Pease ANG 2013).

## **3.3.4 Soils and Water**

### **3.3.4.1 Soils**

The Portsmouth area of New Hampshire is within the Appalachian Highlands and consists almost entirely of glaciated till plains and rolling hills dissected by narrow valleys with a thin mantle of till. The river valleys and coastal plains are filled with glacial lake sediments, marine sediments, and glacial outwash (USDA 2006). The 157 ARW installation is located on improved land and is generally flat with plateau-like declining coastal terrain. Relief ranges from approximately 0 to 115 feet MSL with slopes generally under 5 percent (157 ARW 2008a).

The NRCS Soil Survey for Rockingham County, New Hampshire identifies the following five individual soil types at the installation:

*Pennichuck channery very fine sandy loam, 3 to 8 percent slopes:* This is a gently sloping soil typically found on low hills and terraces from till or glacial drift composed of an unconsolidated mixture of sediments. The rating class for building site development is considered somewhat limited due to slope, depth to hard bedrock, and depth to saturated zone. This soil type is designated as Prime Farmland (NRCS 2012). Approximately 11 percent of the installation is composed of this soil type.

*Udorthents, smoothed:* This soil is found in areas that have been excavated and regraded or that have been filled with soil material and graded. This soil type is typically used for urban development or landfills. The suitability of the soils as a site for development varies (NRCS 2012). The rating class for building site development is not rated for this soil type. Approximately 15 percent of the installation is composed of this soil type.

*Urban land:* This soil primarily consists of cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is not

rated for this soil type and requires onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2012). Approximately 42 percent of the installation is composed of this soil type.

*Urban land-Canton complex, 3 to 15 percent slopes:* This soil is typically found on broad plains and low hills that are partially covered by streets, parking lots, and buildings. The soil consists of strongly intermingled Urban land and sloping Canton soil (NRCS 2012). The rating class for building site development is not rated for this soil type. Approximately 30 percent of the installation is composed of this soil type.

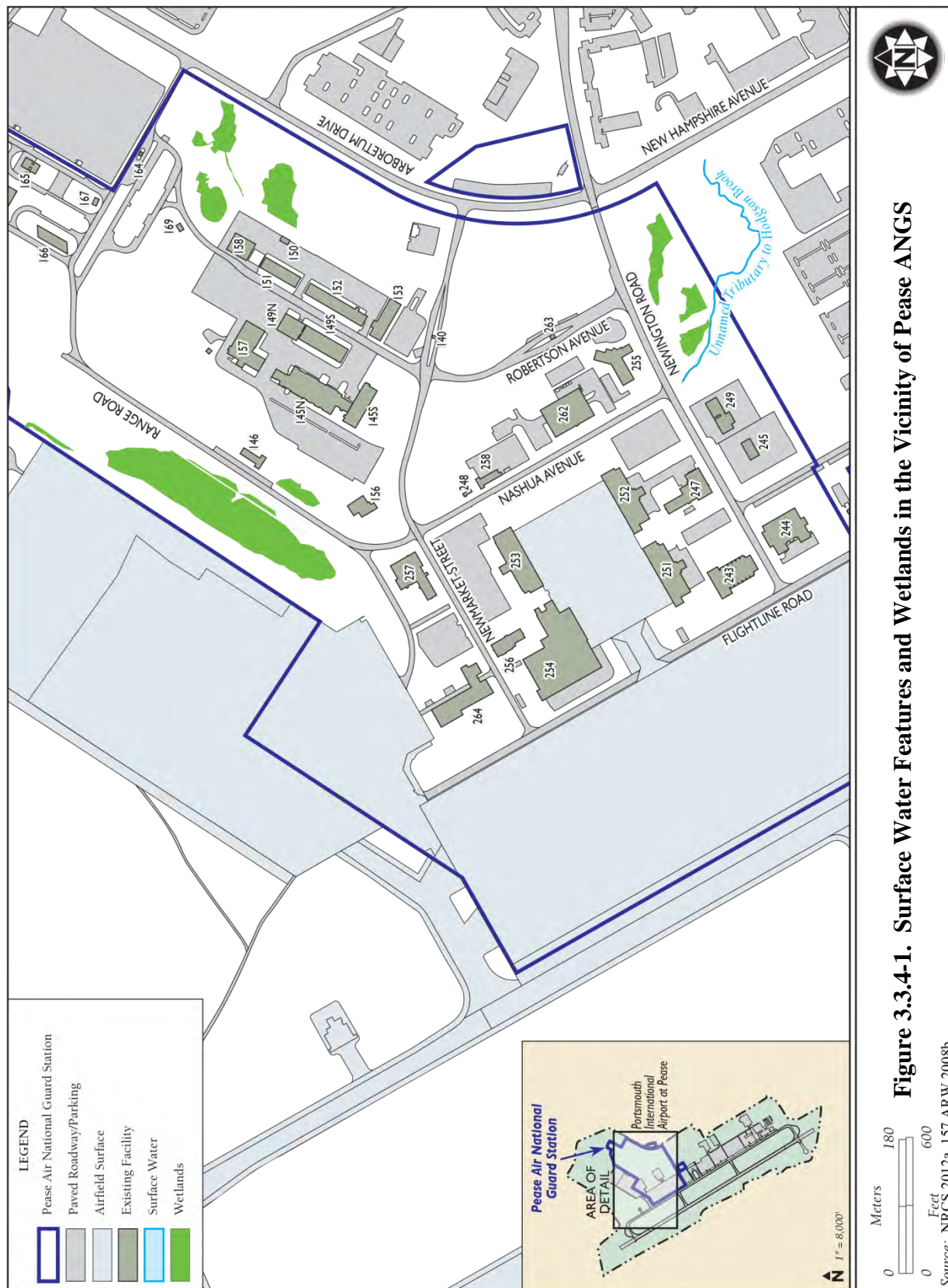
*Windsor loamy sand, 3 to 8 percent slopes:* This gently sloping soil is typically found on low hills, broad plains, and adjacent to major streams. The rating class for building site development is considered somewhat limited due to slope and depth to saturated zone. In addition, this soil type is designated as Farmland of Local Importance (NRCS 2012). Approximately 2 percent of the installation is composed of this soil type.

#### 3.3.4.2 Surface Water

The 157 ARW installation is located within the Piscataqua-Salmon Falls Watershed that encompasses over 2,590 square miles across the states of Maine, New Hampshire, and Massachusetts (USEPA 2013d). The Piscataqua River Watershed, a sub-basin of Piscataqua-Salmon Falls Watershed, is the local watershed surrounding Portsmouth IAP. The Piscataqua River Watershed begins at the confluence of Salmon Falls and Cocheco Rivers and ultimately drains to Portsmouth Harbor (Seacoast Watershed Information Manager 2013).

Surface water features within the vicinity of the 157 ARW installation include the Atlantic Ocean and Portsmouth Harbor to the east, the Great Bay National Estuary to the southwest, Little Bay to the northwest, and several rivers and creeks including: Flagstone Brook to the north, the confluence of Oyster and Piscataqua rivers to the northeast, Paul's Brook to the northeast, Grafton Ditch to the south, Hodgson Brook to the east, and McIntyre Brook to the west (Figure 3.3.4-1).

The Great Bay National Estuary, adjacent to the Portsmouth IAP along its southwestern border, is a unique water feature as it is both a saltwater and a freshwater system, set apart from the coastline. Great Bay lies at the confluence of tidally driven salt water from the Gulf of Maine and fresh water from the Salmon Falls, Cocheco, Bellamy, Oyster, Lamprey, Squamscott, and Winnicut rivers. The USEPA has afforded special protection to it as one of only 28 Estuaries of National Significance (New Hampshire Department of Environmental Services 2013).



Surface water within the installation primarily consists of a series of man-made ditches, storm sewers, and drainage swales. Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes. There are four primary drainage basins on the installation: Outfall-001, -002, -003, and -004. Outfall-001 drains to Hodgson Brook and ultimately joins the Piscataqua River. Outfall-002 drains to Flagstone Brook and eventually discharges to Little Bay. Outfall-003 drains to McIntyre Brook ultimately discharging to Great Bay. Outfall-004 drains to Grafton Ditch and eventually discharges to the Piscataqua River. The outfalls associated with industrial activity are regulated under an individual National Pollutant Discharge Elimination System (NPDES) permit for Stormwater Runoff Associated with Industrial Activity (Permit No. NH0090000). The permit is administered by the USEPA New England Region (Portsmouth IAP 2011).

#### 3.3.4.3 Groundwater

Groundwater in this area is primarily composed of crystalline-rock aquifers of the New England Physiographic Province (USGS 1995b). The regional groundwater system within the Great Bay area consists of a till- or marine-sediment-covered crystalline bedrock aquifer. Coarse-grained sand and gravel aquifers are generally small and discontinuous with the exception of a large ice-contact deposit beneath the former Pease AFB, in Newington. Crystalline bedrock consists of three main units: the Kittery Formation, a metasandstone on the western side of the bay; the Eliot Formation, a phyllite along the eastern and southern sides of the bay; and the Exeter Diorite, inland west of the bay (USGS 2001).

Groundwater at the 157 ARW occurs in unconsolidated material, fractured bedrock, and competent bedrock. The principal water-bearing overburden units are the Upper Sand and Lower Sand. Tidal fluctuations can be measured in both water table and bedrock wells within the installation. Groundwater elevations also vary seasonally, with groundwater highs from December to May and lows from July to September. Based on the installation groundwater contour map, the subject property is on a localized high point with radial flow outward (157 ARW 2008a).

The primary water source for the Pease International Tradeport are three wells operated by Portsmouth waterworks; Haven, Smith, and Harrison wells (City of Portsmouth 2010). There are currently three active Groundwater Management Zones located on the installation, as mandated by the New Hampshire Department of Environmental Services. A Groundwater Management Zone is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site. The source of contaminants in the three Groundwater Management Zones on the installation include the flightline, Building 249 (a storage facility), and the Bulk Fuels Storage area (157 ARW 2008a).

#### 3.3.4.4 Floodplains

Per the FEMA Flood Insurance Rate Map for Rockingham County, New Hampshire, Panel 255 (Map Number 33015C0255E, Effective May 17, 2005), the 157 ARW installation is located within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding (FEMA 2005).

### 3.3.5 Biological Resources

#### 3.3.5.1 Vegetation

Portsmouth IAP occurs within the Eastern Broadleaf Forest (Oceanic) Province. Vegetation in this region typically is characterized by a winter deciduous forest dominated by tall broadleaf trees (Bailey 1995). The majority of the 157 ARW installation is developed or actively landscaped, with approximately 37 percent containing natural vegetation. Natural vegetation consists of primarily fragmented areas comprised of Appalachian oak-pine forests in the northern and southeastern portion of the installation. Dominant evergreen species include white pine (*Pinus strobus*) and hemlock (*Tsuga canadensis*). Dominant deciduous species include maples (*Acer* spp.), oaks (*Quercus* spp.), birch (*Betula* spp.), beech (*Fagus grandifolia*), and hickories (*Carya* spp.) (NGB 2011; 157 ARW 2008a, 2013b).

#### 3.3.5.2 Wildlife

Due to the fragmented pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present at the airport and the 157 ARW installation consists of species that are highly adapted to developed and disturbed areas. Pease ANGS is located within the Atlantic Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found at Portsmouth IAP or within its vicinity are protected under the MBTA. Common bird species occurring or potentially occurring in or near the airport include Rock Doves (*Columba livia*), European Starlings (*Sturnus vulgaris*), Mourning Doves (*Zenaida macroura*), American Crows (*Corvus brachyrhynchos*), American Kestrels (*Falco sparverius*), Red-winged Blackbirds (*Agelaius phoeniceus*), Short-eared Owls (*Asio flammeus*), and Red-tailed Hawks (*Buteo jamaicensis*). Common mammals include white-tailed deer (*Odocoileus virginianus*), red foxes (*Vulpes vulpes*), coyotes (*Canis latrans*), eastern chipmunk (*Tamias striatus*), gray squirrel (*Sciurus carolinensis*), and raccoon (*Procyon lotor*). Common reptiles and amphibians include the American bullfrog (*Lithobates catesbeianus*), American toad (*Anaxyrus americanus*), eastern red-backed salamander (*Plethodon cinereus*), black racer (*Coluber constrictor*), snapping turtle (*Chelydra serpentina*), and spotted turtle (*Clemmys guttata*) (157 ARW 2008a, 2013b).

### 3.3.5.3 Special Status Species

No federally listed or candidate species are known to occur within the airport vicinity or on the 157 ARW installation. However, eight state listed species have been observed within the airport vicinity, and additional special status species have been observed within Rockingham County within the vicinity of Portsmouth IAP. A list of these species can be found in Appendix E. There is no critical habitat located on the installation (157 ARW 2013, New Hampshire Fish and Game 2013, New Hampshire Natural Heritage Bureau 2013).

### 3.3.5.4 Wetlands

Nine jurisdictional wetlands, totaling 6.86 acres, occur on the 157 ARW installation in the southeast and northern portion of the installation (Figure 3.3.4-1). Seven of these wetlands are palustrine forested and two are considered palustrine emergent wetlands (NGB 2011, 157 ARW 2013b). None of these wetlands occur within the vicinity of the proposed construction projects.

## 3.3.6 Cultural Resources

### 3.3.6.1 Archaeological Resources

All portions of the 157 ARW installation determined to be relatively undisturbed were intensively surveyed for cultural resources. One archaeological resource consisting of two Native American artifacts was encountered in a shovel test pit within a layer of fill material from adjacent construction activities. Due to the isolated and sparse nature of the find and its location in fill, the resource is considered not eligible for listing in the NRHP (157 ARW 2009). The New Hampshire SHPO has concurred with these findings (see Muzzey 2009 in Appendix B4).

### 3.3.6.2 Architectural Resources

All 46 buildings and structures pre-dating the end of the Cold War era (pre-1990) were inventoried and evaluated for NRHP-eligibility (157 ARW 2009). None of the buildings, structures, or monuments were recommended as eligible for listing in the NRHP (157 ARW 2009; St. Louis 2009). The New Hampshire SHPO has concurred with these recommendations (see Muzzey 2009 and St. Louis 2009 in Appendix B4).

### 3.3.6.3 Traditional Resources

The 157 ARW installation contains no known traditional resources; however, one federally-recognized Tribe that is historically, culturally, and linguistically affiliated with the area has been identified: The Penobscot Indian Nation.

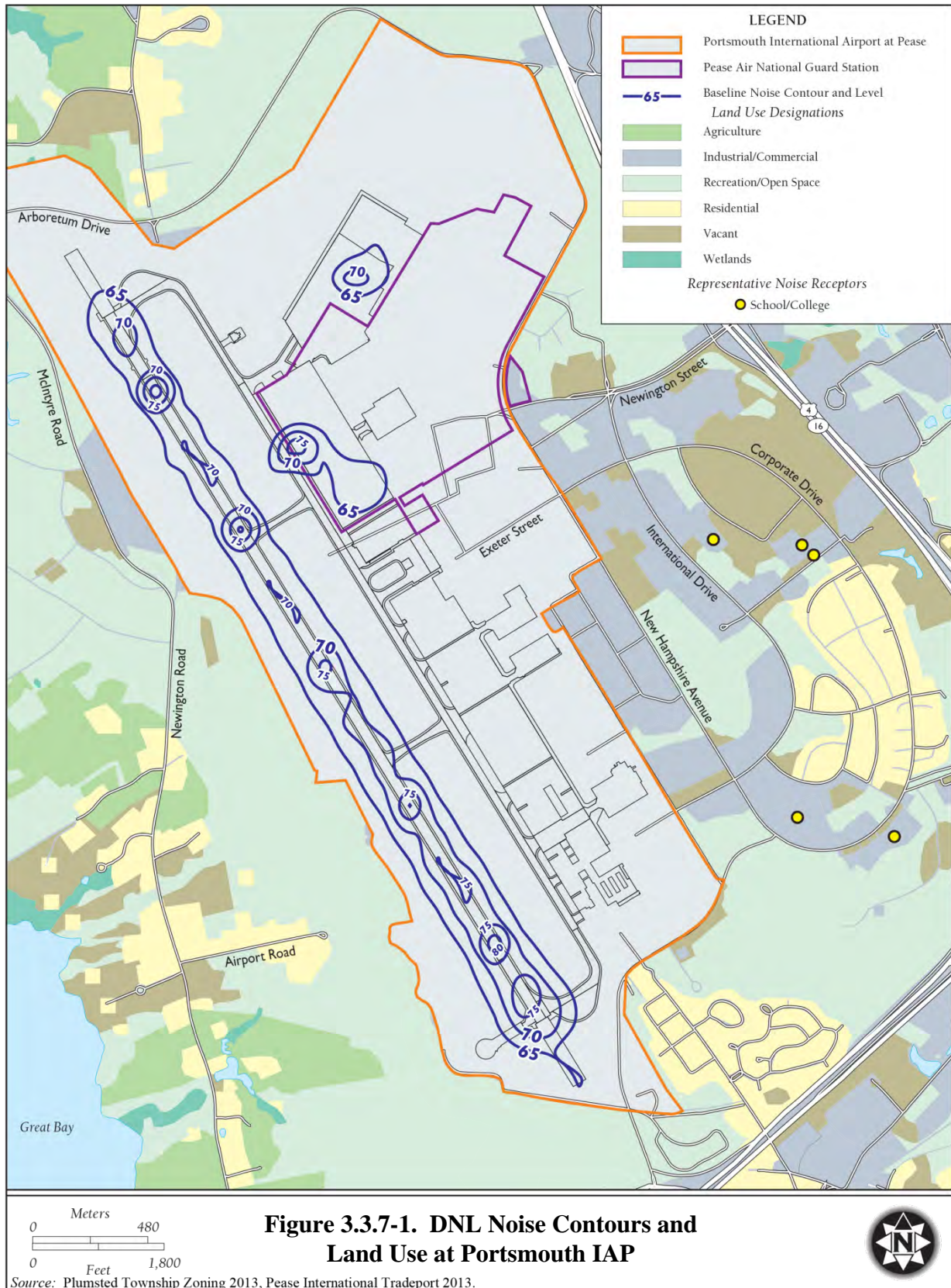


### 3.3.7 Land Use

The Pease ANGS occupies approximately 220 fee owned acres in the northeastern portion of Portsmouth IAP, situated in both Newington and Portsmouth in Rockingham County, New Hampshire. Portsmouth IAP is a holding of the Pease International Tradeport; the Tradeport is owned and operated by the PDA, a state agency of New Hampshire. The present day Pease International Tradeport was established in the 1950s by the USAF as Pease AFB and owned by the USAF Strategic Air Command. When the Base Realignment and Closure Committee closed Pease AFB in October 1991, the 157 ARW became the sole occupant. The USAF maintained ownership of and management responsibility for the property of the remaining 1,073 acres until 1997. Between 1992 and 1997, the USAF transferred 1,054 acres to the USFWS and 19 acres to the U.S. Department of Transportation (157 ARW 2008a).

Land use surrounding Portsmouth IAP is predominantly open space characterized by forested areas interspersed with commercial, residential, industrial parcels. Small parcels of agricultural use are located to the southwest. Wetland areas lie to the northwest and southeast. The Great Bay National Wildlife Refuge, established in 1992 and managed by the USFWS, occupies a large tract of land just to the northwest of the airport and presents a barrier to future development (Rockingham Planning Commission 2006). The Great Bay Estuary, New Hampshire's largest estuarine system, lies approximately 1 mile to the west and north of the airport boundary. This estuarine complex is fed by the tidal waters of the Piscataqua River, flowing approximately 1.5 miles east of the airport. The Spaulding Turnpike (SR 4) runs roughly parallel to the airport's eastern boundary and I-95 traverses just beyond the southeastern boundary of the airport.

Zoning surrounding the airport generally supports compatible land use planning and provides protection of Portsmouth IAP (City of Portsmouth 2012a). Zoning codes define and establish airport hazard zones height limitations and land use restrictions within these zones. This zoning protects RPZs, details of which can be found in the Safety section of Appendix A, Section A.3. In Portsmouth, land surrounding the airport to the south and west is zoned primarily as Natural Resource Protection (Open Space/Conservation) with an isolated development zoned for Residential use, located between I-95 and the south end of the airport. A golf course is also located just south of the airport. Adjacent areas to the east of the airport are zoned for Business (Commercial), Residential, and Municipal (Public) (City of Portsmouth 2012a). In Newington, areas to the north are generally zoned for Residential and Commercial uses (Town of Newington 2009). Current average noise levels from aircraft operations above 65 dB DNL do not extend off-base (Figure 3.3.7-1).



### **3.3.8 Infrastructure and Transportation**

#### **3.3.8.1 Potable Water System**

Potable water for the 157 ARW installation is supplied by the Madbury Treatment Plant operated by the City of Portsmouth Water Department. Potable water in the area is supplied primarily from the three regional groundwater aquifer wells located on Pease International Tradeport. The City of Portsmouth pumps approximately 1.64 trillion gallons of water per year to its customers (City of Portsmouth 2012b). In CY 2012, 26,510,960 gallons of potable water was supplied to the 157 ARW installation (157 ARW 2012a).

#### **3.3.8.2 Wastewater**

The 157 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including oil/water separator discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 157 ARW installation is conveyed into the municipal sewage system, operated by the City of Portsmouth to the Pease International Tradeport Wastewater Treatment Facility. The facility has an average daily flow capacity of 1.2 million gallons per day but typically receives 0.75 million gallons of wastewater per day for treatment (City of Portsmouth 2006).

#### **3.3.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the Pease International Tradeport SWPPP (2011), the 157 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.3.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.3.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 157 ARW installation by Public Service of New Hampshire via a substation located on the north side of Building 153 and is distributed via underground lines. Natural gas is supplied by Unitil Corporation. Electricity consumption for CY 2012 at the 157 ARW installation was 4,271,136 kilowatt hours. Natural gas consumption for CY 2012 at the 157 ARW installation was 124,582 thousand cubic feet (157 ARW 2012a).

#### 3.3.8.5 Solid Waste Management

Municipal solid waste at the 157 ARW installation is managed in accordance with the 157 ARW Solid Waste Management Plan (157 ARW 2012a) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 157 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 157 ARW installation, recyclables are separated, and waste is transported by contract to Turnkey Landfill in Rochester, New Hampshire or other local landfill (157 ARW 2012a). Up to 83 percent of mixed containers (both debris and recyclables) is recycled, and 100 percent of metal and cardboard are recycled (Smith 2013b).

#### 3.3.8.6 Transportation

The 157 ARW installation is located within close proximity to several major highways. U.S. Route 4 is located to the north and east of the installation and runs west to Concord, New Hampshire. U.S. Route 4 intersects with New Hampshire Route 16 northeast of the installation. New Hampshire Route 16 intersects with I-95 southeast of the airport and runs the entire length of the eastern seaboard. In addition, SRs 101 and 108 are located near the installation to the south and west. Access to the installation is located at the intersection of Pease Boulevard and Arboretum Drive (157 ARW 2008a).

### 3.3.9 Hazardous Materials and Waste

#### 3.3.9.1 Hazardous Materials

Hazardous materials are used at the 157 ARW installation for aircraft operations support and maintenance, including POL management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight simulation. Types of hazardous substances found on the 157 ARW installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (157 ARW 2013c).

There are 16 ASTs that are currently on the installation that are used to store heating oil, diesel, jet fuel, motor gasoline, and high expansion foam. The majority of USTs currently at the installation are used as overflow storage tanks in conjunction with various OWSs. There is one registered 4,000-gallon UST adjacent to Building 168 in the Bulk Fuels Storage Area (157 ARW 2005).

### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 157 ARW installation in 2011. ACM identified in the insulation, floor tiles, and mastic were found in Buildings/Hangars 149, 151, 152, 153, 241, 247, 251, 252, 254, and 262 (157 ARW 2005, 2011a).

A LBP survey has not been conducted at the 157 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation (157 ARW 2005).

PCB-containing transformers were removed from the subject property in 1993. With the exception of occasionally encountering a PCB ballast, there are no known sources of PCBs at the subject property (157 ARW 2005).

### 3.3.9.2 Hazardous Waste Management

The 157 ARW Spill Prevention, Control, and Countermeasure Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (157 ARW 2012b). The 157 ARW Hazardous Waste Management plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (157 ARW 2012a).

The 157 ARW is regulated as a Small Quantity Generator of hazardous waste by the USEPA and maintains USEPA Identification Number NH8572824847. The 157 ARW is regulated as a Full Quantity Generator of hazardous waste per New Hampshire regulations. Full Quantity Generators are defined as those entities generating greater than or equal to 100 kilograms of hazardous waste a month. Although facilities that generate this amount (but no more than 2,200 pounds) of hazardous waste are considered a small quantity generator by the USEPA, the 157 ARW follows the more stringent Full Quantity Generator requirements of New Hampshire. A hazardous waste generation point is where the waste is initially created or generated. A SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the

control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are 29 SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 145, 146, 149, 157, 243, 244, 245, 168, 249, 251, 253, 254, and 256. The installation CAP consists of two outdoor hazmat storage sheds and a small portion of Hangar 253 (157 ARW 2013c).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Fourteen OWSs are located on the 157 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance areas. One 3,000-gallon concrete OWS for Building 249 failed in the 1980s and contaminated the soil and groundwater. It was replaced in 1992 with a new 1,000-gallon concrete OWS. This resulted in the institution of a ground water management zone to monitor the petroleum contaminants (see Section 3.3.4, *Soils and Water*) (157 ARW 2005).

### 3.3.9.3 Environmental Restoration Program

There are two closed ERP sites at the 157 ARW installation. Table 3.3.9-1 provides details for each of these sites and Figure 3.3.9-1 shows the locations.

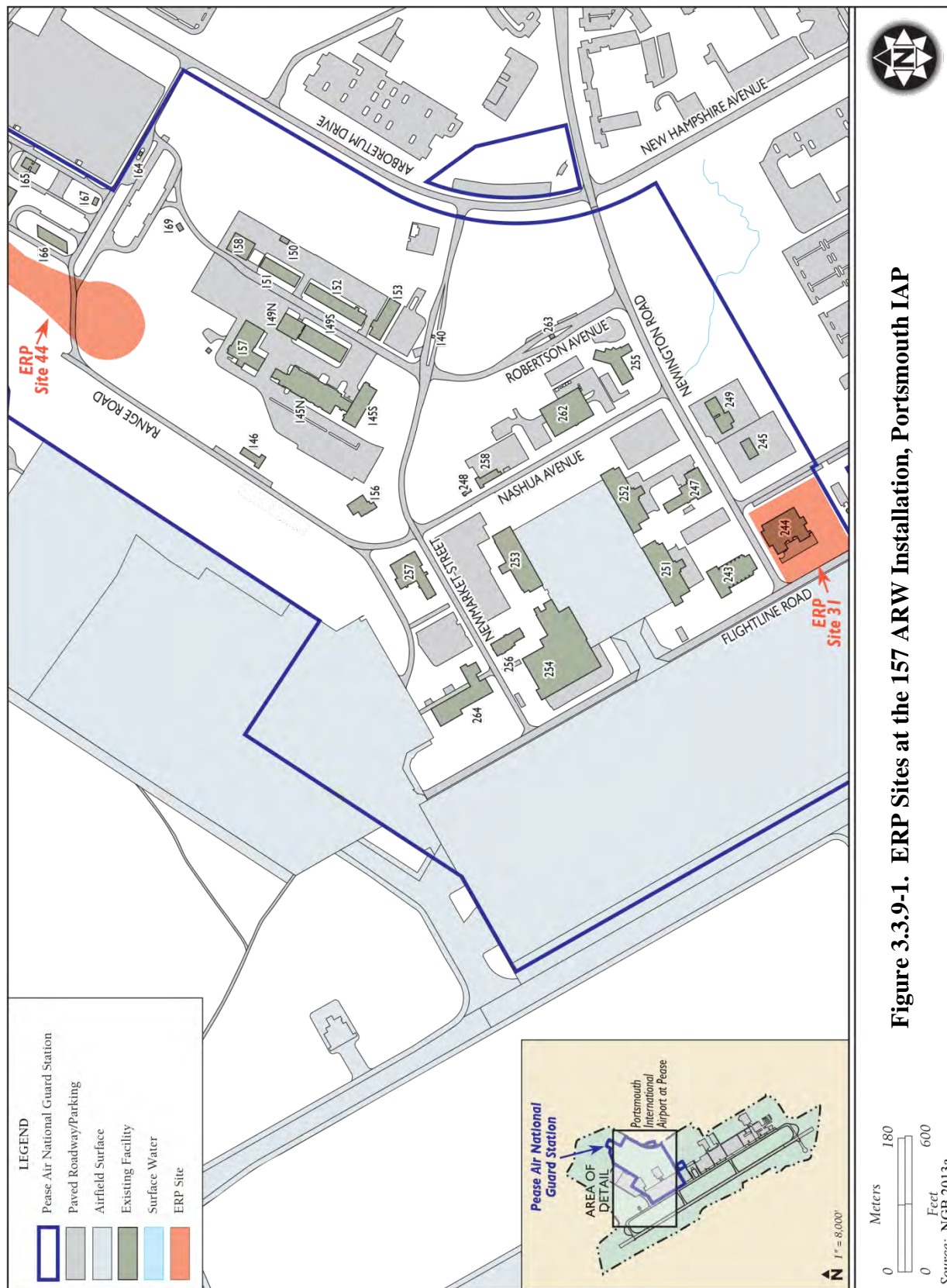
**Table 3.3.9-1. ERP Sites within the 157 ARW Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
31	Waste Solvent Tank located at Building 244, former aircraft maintenance and repair building. Degreasing operations generated waste solvents, primarily trichloroethene. Trichloroethene was held in a 1,200-gallon UST adjacent to Building 244. Soil and groundwater sampling confirmed that the UST had leaked.	Closed
44	This site was a Paint Can Disposal Area and was a common location for burial waste flocculent generated at the industrial waste treatment plant. Soil and groundwater sampling conducted showed that contaminant concentrations did not exceed action levels.	Closed

*Note:* UST = underground storage tank

*Source:* 157 ARW 2005.







### 3.3.10 Socioeconomics

#### 3.3.10.1 Population and Employment

##### *Population*

Pease ANG is located in Portsmouth and Newington, New Hampshire, in Rockingham County. Current population data and estimates for the state of New Hampshire, Rockingham County, Town of Newington, and Portsmouth are provided in Table 3.3.10-1. From 1990 to 2010, Rockingham County's population increased by 49,378, an increase of approximately 20 percent (USCB 1990c, 2000c, 2010d).

**Table 3.3.10-1. Population Growth within the Vicinity of Pease ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
New Hampshire	1,109,252	1,235,786	1,316,470
Rockingham County	245,845	277,359	295,223
Town of Newington	990	775	753
Portsmouth	25,925	20,784	20,779

*Source:* Town of Newington 2009; USCB 1990c, 2000c, 2010d.

The 157 ARW currently supports a workforce authorization of 1,382, including 539 full-time and 843 part-time personnel (see Table 2.3-18).

##### *Employment and Earnings*

Table 3.3.10-2 presents total labor force and employment rates for New Hampshire, Rockingham County, Town of Newington, and Portsmouth. Based on 2007-2011 ACS 5-year estimates, there were 171,749 persons in the labor force (able to work) and 161,577 employed within Rockingham County, resulting in an unemployment rate of approximately 6 percent. Top employment industries in Rockingham County include 1) educational services, and health care and social assistance; 2) retail; and 3) manufacturing (USCB 2011d). Principal employers in the region include Portsmouth Naval Shipyard, UA Local 788 Marine Pipefitter, Portsmouth Regional Hospital, and Liberty Mutual Insurance (InfoGroup 2013, 157 ARW 2008a).

**Table 3.3.10-2. Employment Data (2011) within the Vicinity of Pease ANG**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
New Hampshire	743,342	696,674	46,668	6.3
Rockingham County	171,749	161,577	10,172	5.9
Town of Newington	416	414	2	0.5
Portsmouth	13,222	12,625	597	4.5

*Note:* Employment numbers include individuals in the Armed Forces.

*Source:* USCB 2011d.

### 3.3.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 53,702 students were enrolled in schools from Kindergarten through Grade 12 in Rockingham County (USCB 2011d).

### 3.3.10.3 Housing

In 2010, the number of housing units in Rockingham County was 126,709, with a vacancy rate of approximately 9 percent (USCB 2010d).

## 3.3.11 Environmental Justice and the Protection of Children

### 3.3.11.1 Minority and Low-Income Populations

Table 3.3.11-1 displays the minority, low-income, and children under age 18 within the state of New Hampshire, as well as the county and towns within the vicinity of Portsmouth IAP. Approximately 4 percent of the population of Rockingham County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 6 percent for the state of New Hampshire. The percentage of population living below the poverty level for the state of New Hampshire (approximately 8 percent) is higher than Rockingham County (approximately 5 percent) (USCB 2010d).

**Table 3.3.11-1. Population within the Vicinity of Pease ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
New Hampshire	1,316,470	80,420	6.1	105,318	8.0	287,234	21.8
Rockingham County	295,223	13,257	4.4	14,466	4.9	67,438	22.8
Town of Newington	753	28	3.7	28	3.7	130	17.3
Portsmouth	20,779	1,762	8.5	1,870	9.0	3,459	16.6

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.  
2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010d, 2011d.

The 65 dB DNL contour does not extend off the airport property; therefore, currently there are no populations, including minority or low-income populations, in the vicinity of Portsmouth IAP within the baseline DNL greater than 65 dB.

### 3.3.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Rockingham County was approximately 67,438 (22.8 percent of the population) (Table 3.3.11-1). The state of New Hampshire has a slightly lower percentage population of children compared to the counties (21.8 percent). There are no on-installation housing or facilities for children located at the 157 ARW installation. Currently there are no Kindergarten through Grade 12 off-installation schools that are exposed to DNL of 65 dB or above.

### **3.4 PITTSBURGH AIR NATIONAL GUARD STATION**

Pittsburgh ANGS, home of 171 ARW of the PA ANG, is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County. The 171 ARW installation is situated on the southeastern side of the Pittsburgh IAP, an international airport owned and operated by the ACAA.

#### **3.4.1 Noise**

To evaluate noise impacts in the vicinity of a military installation located within a commercial airport with a published FAR Part 150 Airport Noise Compatibility Study, the USAF allows for use of the FAA's INM to generate DNL noise contours. The ACAA under the FAA uses the INM computer model for generating noise contours and for Pittsburgh IAP, the FAA's INM was used. For more detailed information on the noise modeling methods see Appendix A, Section A.1.2.

##### **3.4.1.1 Baseline Operations**

This section describes the baseline conditions as approved by the ACAA. In 2006, the ACAA completed Noise Exposure Maps Update as part of the FAA's FAR Part 150 Noise Compatibility Program for Pittsburgh IAP based on operational data from a 12-month period ending February 2005. The study used the standard FAA INM program to establish noise contours based on those operations and is the FAA approved and public document for the noise compatibility program currently in effect for the airport.

Based on aircraft operations data validated in March 2013 (FAA 2013, 171 ARW 2013a), approximately 139,217 total aircraft operations occurred at Pittsburgh IAP during 2012; of those, the 171 ARW flew a total of 6,943 airfield operations with approximately 7 percent at night (approximately 5 percent of total operations at the airfield). These numbers were validated by the 171 ARW and Pittsburgh ATADs (FAA tower) report and are used as the basis for determination of KC-46A airfield operations for the Proposed Action (FAA 2013, 171 ARW 2013a).

The current FAR Part 150 data identified 321,436 total aircraft operations that occurred at Pittsburgh IAP during the 12-month period ending March 2006. Per the request of the ACAA, the current approved and published FAR Part 150 Noise Compatibility Program Update for Pittsburgh IAP is used as the baseline for this analysis (Belotti 2013). The baseline aircraft operations at the airport used for this analysis differs from the current 2012 aircraft operations

due to changes to airfield use by U.S. Air which no longer uses Pittsburgh IAP as a major commercial airline hub.

Table 3.4.1-1 summarizes the frequency of aircraft operations for Pittsburgh IAP based on information provided by base staff, flying organizations, and air traffic control personnel. An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. The majority of aircraft traffic includes air cargo, commercial regional jets (air taxi), and larger commercial aircraft and other based military aircraft, along with based ANG KC-135 aircraft. There are also a number of general aviation jet and non-jet and corporate aircraft based at the airfield. Although the number of aircraft operations at an airfield varies from day to day, for Pittsburgh IAP, operations are calculated for an AAD, meaning that yearly operations are averaged across all 365 days of the year. Table 3.4.1-1 reflects a total of approximately 881 aircraft operations on an AAD (321,436 divided by 365 days). Approximately 9 percent of the total operations at Pittsburgh IAP occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.4.1-1. Current Pittsburgh IAP Annual Aircraft Operations FAR Part 150<sup>1</sup>**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>2</sup>		<i>Grand Total<sup>2</sup></i>
	<i>Day</i>	<i>Night<sup>3</sup></i>	<i>Day</i>	<i>Night<sup>3</sup></i>	<i>Day</i>	<i>Night<sup>3</sup></i>	
KC-135	6,530	0	6,530	0	13,060	0	13,060
Other Aircraft <sup>4</sup>	140,683	13,505	140,683	13,505	281,366	27,010	308,376
<b>Total</b>	<b>147,213</b>	<b>13,505</b>	<b>147,213</b>	<b>13,505</b>	<b>294,426</b>	<b>27,010</b>	<b>321,436</b>

Notes: 1. Operations based on currently approved FAR Part 150.  
 2. Includes Closed Patterns (which count as two airfield operations).  
 3. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 4. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: Boeing 747, 717, and the Airbus 321.

Source: ACAA 2006.

Based on the published FAR Part 150 Study (2006), the 171 ARW KC-135 aircraft flew a total of 13,060 annual airfield operations, or an average of 36 airfield operations a day. No KC-135 operations at Pittsburgh IAP occur during environmental night in the baseline data. Approximately 4 percent of total operations at Pittsburgh IAP are accomplished by the 171 ARW KC-135 aircraft (ACAA 2006).

### 3.4.1.2 Runway and Flight Profiles

Pittsburgh IAP aircraft use VFR departures, published Standard Instrument Departures, straight in approaches, overhead approaches, IFR or radar closed patterns, and VFR closed patterns along with re-entry VFR patterns as the basic flight patterns for general aviation and military training flights and local arrival and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in the Appendix C, *Noise*.

### 3.4.1.3 Existing Noise Environment

Noise contours developed for the baseline conditions at Pittsburgh IAP are shown in Figure 3.4.1-1. The acreage within each DNL contour on and off Pittsburgh IAP property is shown in Table 3.4.1-2. Approximately 3,138 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.4.7, *Land Use*.

**Table 3.4.1-2. Acres within Baseline Noise Contours, Pittsburgh IAP**

<i>Noise Level (dB)</i>	<i>On Airport (acres)</i>	<i>Off Airport (acres)</i>	<i>Total (acres)</i>
65-70	1,331.5	128.6	1,460.1
70-75	850.7	0	850.7
75-80	468.6	0	468.6
80-85	151.5	0	151.5
Greater than 85	207.5	0	207.5
<b>Total</b>	<b>3,009.8</b>	<b>128.6</b>	<b>3,138.4</b>

Notes: dB = decibel

#### *Potential Hearing Loss*

As shown in Table 3.4.1-2, there is no property off the Pittsburgh IAP that falls within the 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

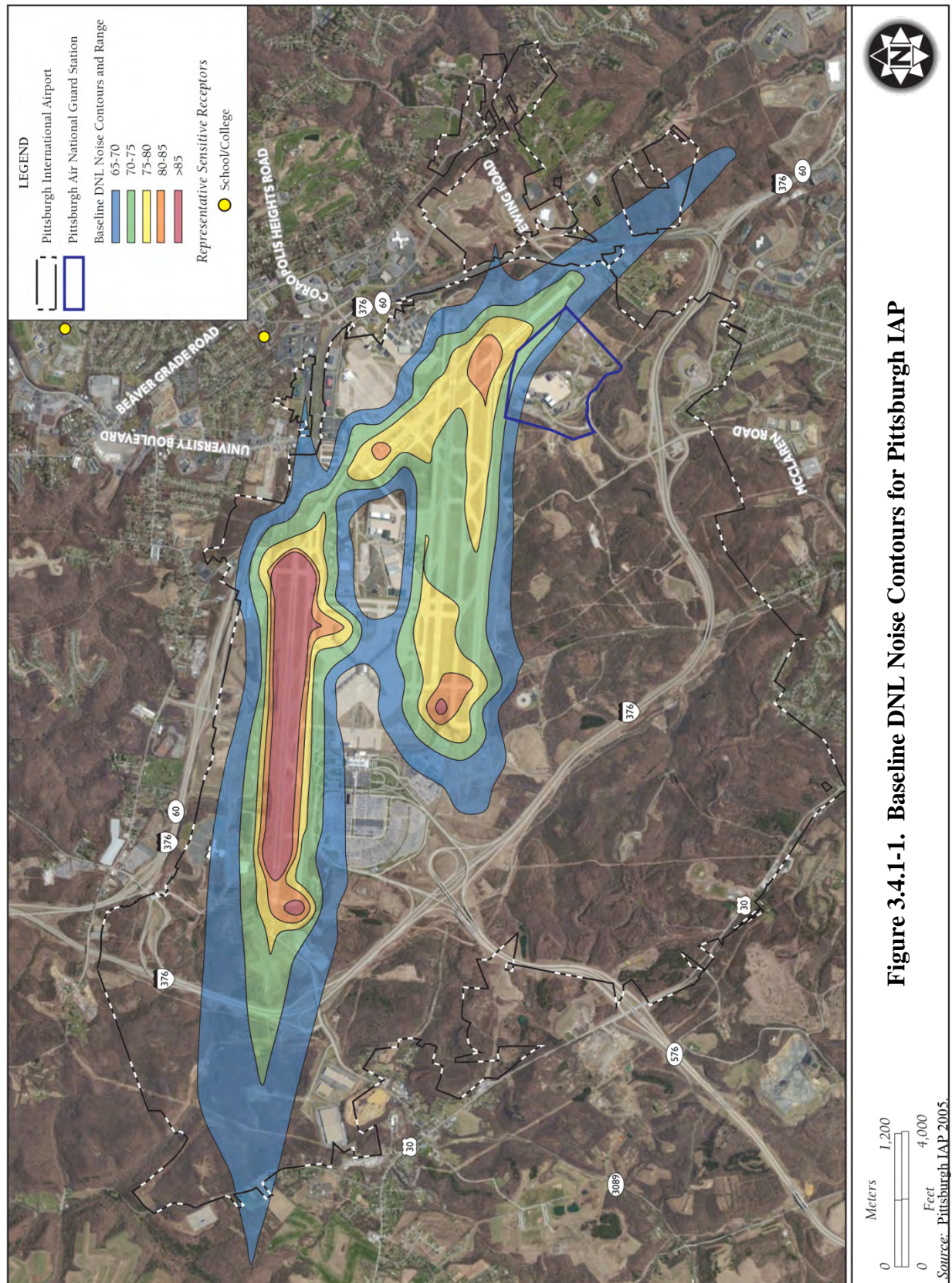
### 3.4.1.4 Pittsburgh International Airport Noise Abatement Procedures

Pittsburgh IAP has no published restrictions on flying activities but has instituted noise abatement procedures that are incorporated directly into their Air Traffic Control Operating Procedures. Procedures include departing aircraft to maintain runway heading to 1,700 feet above mean sea level (AMSL) and follow Departure Control (SkyVector 2013b).

### 3.4.1.5 Pittsburgh International Airport Noise Complaints Procedures

Currently, Pittsburgh IAP procedures for registering and logging noise complaints are through the Airport Operation's staff, who receive calls on a 24-hour basis. Calls requiring investigation and/or follow up to assure compliance with the FAR Part 150 Noise Program are submitted to the Manager of Planning Services. During 2012, the airport reported a total of 274 complaints, 259 from three specific individuals and 15 from others. Any noise complaints resulting from the 171 ARW are routed through 171 ARW operations for resolution. The number of noise complaints is not considered significant due to the large airport property and lack of urban encroachment (Belotti 2013).







### 3.4.2 Air Quality

#### 3.4.2.1 Regulatory Setting

In addition to criteria pollutants, the USEPA has defined 187 substances as HAPs. HAPs are substances that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion sources. HAPs are regulated for specific source categories under the USEPA's *National Emission Standards for Hazardous Air Pollutants* regulations.

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The Pennsylvania Department of Environmental Protection (PADEP) Bureau of Air Quality is the agency responsible for the regulation of air quality within the state of Pennsylvania. The state of Pennsylvania regulates air quality through the Pennsylvania Code Title 25, Article III, Chapters 121 through 145. Within Allegheny County, air quality is regulated by the Allegheny County Health Department Division of Air Quality through Article XXI Air Quality Regulations. The state of Pennsylvania has adopted the NAAQS, and has adopted additional standards regulating beryllium, fluorides, hydrogen sulfide, and settled particulate matter. Because the Proposed Action would not contribute to emissions of these pollutants, they are not considered further in this EIS. The NAAQS are summarized in Table 3.4.2-1.

Pittsburgh ANGS is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County. The USEPA has classified Allegheny County as a moderate nonattainment area for the 1997 8-hour O<sub>3</sub> NAAQS, and is classified as a marginal nonattainment area for the 2008 8-hour O<sub>3</sub> NAAQS. Allegheny County is also a nonattainment area for PM<sub>2.5</sub>. Pittsburgh is also designated as a nonattainment area for CO, but this designation applies only in high traffic areas in the central business district of the city. The region is designated attainment/unclassified area for all other criteria pollutants. Alternative #4 is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (NO<sub>x</sub> and VOCs) is 100 tpy, and the *de minimis* emission threshold for PM<sub>2.5</sub> emissions is also 100 tpy.

**Table 3.4.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	<b>NATIONAL STANDARDS<sup>a</sup></b>	
		<i>Primary<sup>b,c</sup></i>	<i>Secondary<sup>b,d</sup></i>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary

*Notes:* a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

*Source:* USEPA 2012.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

### 3.4.2.2 Climate and Meteorology

Pittsburgh is located in the southwestern corner of Pennsylvania, at the foothills of the Allegheny Mountains, where the Allegheny and Monongahela Rivers join to form the Ohio. The city's humid climate is modified slightly by its relative proximity to the Atlantic Seaboard and the

Great Lakes. The Pittsburgh area experiences extremes of all four seasons. Precipitation is distributed throughout the year, with much of the precipitation occurring as snow during the winter months (Northeast Regional Climate Center 2013c).

January is the coldest month, with an average minimum temperature of 19.9°F. July is the hottest month, with an average maximum temperature of 82.7°F. The average annual temperature is 50.3°F. The average annual precipitation in Pittsburgh is 36.9 inches (Northeast Regional Climate Center 2013c).

The average wind speed in the Pittsburgh area is 9 miles per hour. Winds are generally westerly to southwesterly during the year (Northeast Regional Climate Center 2013c).

### 3.4.2.3 Regional and Local Air Pollutant Sources

The 171 ARW of the PA ANG is based on the southwestern side of Pittsburgh IAP in Allegheny County, Pennsylvania. The surrounding area includes a mix of uses, including residential development, commercial development, and open space.

The USEPA's National Emissions Inventory includes data for the year 2008 for Allegheny County. Table 3.4.2-2 summarizes the regional emissions (stationary and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.4.2-2. Regional Emissions for Allegheny County, Pennsylvania**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	21,006	4,790	17,467	43,185	6,387	5,411
Area-Wide Source	1,196	20,270	165	29	11,969	1,613
Mobile Sources	141,851	13,231	24,496	351	1,203	1,038
<b>Total</b>	<b>164,053</b>	<b>38,291</b>	<b>42,128</b>	<b>43,565</b>	<b>19,559</b>	<b>8,062</b>

Notes: Numbers may not match precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant  
CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

Source: USEPA 2008.

### 3.4.2.4 Baseline Air Quality

Representative background air monitoring data for the 171 ARW for the period 2008-2012 are shown in Table 3.4.2-3. The closest monitoring stations to Pittsburgh IAP include three monitoring stations in Pittsburgh itself.

As shown in Table 3.4.2-3, the area has experienced several O<sub>3</sub> exceedances during the recent 5-year period. The Pittsburgh area also experienced exceedances of the 24-hour PM<sub>2.5</sub> standard. The data show that the area did not experience violations of other NAAQS.

**Table 3.4.2-3. Ambient Air Monitoring Data for the Pittsburgh Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.08	0.071	0.084	0.086	0.086
Days above federal standard (0.075 ppm)	1	0	2	3	8
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	39.7	33.3	41.5	32.1	23.1
Days above federal standard (35 µg/m <sup>3</sup> )	3	0	3	0	0
Annual Average value (µg/m <sup>3</sup> )	12.9	11.6	12.2	11.1	10.1
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	58	53	58	55	54
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	1.8	1.9	1.8	1.9	4.6
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.3	1.3	1.4	1.5	2.5
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.086	0.059	0.066	0.069	0.047
98 <sup>th</sup> Percentile (ppm)	0.066	0.049	0.051	0.058	0.043
Days above federal standard (0.100 ppm)	0	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.106	0.087	0.057	0.037	0.034
99 <sup>th</sup> Percentile (ppm)	0.062	0.061	0.035	0.023	0.022
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	0	0
Peak 24-hour value (ppm)	0.019	0.020	0.021	0.013	0.010

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.4.2.5 171<sup>st</sup> Air Refueling Wing Emissions

The 171 ARW currently flies and maintains 16 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 171 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

Emissions for the 171 ARW have been quantified in the *Final 2011 Air Emissions Inventory* (171 ARW 2013b). The inventory evaluated the emissions from the 171 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source

thresholds for the area, the major source thresholds are 50 tpy for VOCs, 100 tpy for all other criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs.

The 171 ARW does not currently hold a Title V Operating Permit, but operates under a Minor Source Operating Permit (No. 0287) issued by the Allegheny County Health Department. The 2011 Air Emissions Inventory demonstrates that total base-wide potential emissions from stationary sources are below the major source thresholds.

Stationary source emissions at the 171 ARW include emissions from combustion sources, chemical use, and small arms fire. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 171 ARW installation considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources, and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #4, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3-19, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.4.2-4.

**Table 3.4.2-4. 171 ARW Baseline Emissions at Pittsburgh ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	3.42	50.69	67.79	6.14	0.33	0.33	17,082
AGE	0.01	0.01	0.10	0.00	0.00	0.00	2,395
Engine Testing	0.11	1.67	0.46	0.07	0.01	0.01	198
POVs	4.27	65.56	3.37	0.05	0.14	0.06	2,270
<b>Total Baseline Emissions</b>	<b>7.81</b>	<b>117.93</b>	<b>71.72</b>	<b>6.26</b>	<b>0.48</b>	<b>0.40</b>	<b>21,946</b>

Notes: Numbers may not match precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

Source: 171 ARW 2013b.

### **3.4.3 Safety**

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Pittsburgh IAP.

#### **3.4.3.1 Ground Safety**

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 171 ARW are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by AFOSH requirements. Under previous NEPA analysis (171 ARW 2012a), the 171 ARW plans to move the Fire/Crash Rescue Station to Building 304. The Fire/Crash Rescue Station currently provides fire, crash, rescue, and structural fire protection for the installation and its aircraft. The 171 ARW also has arrangements with the Allegheny County Fire Department; Ohio Valley Fire Defense Mutual Aid Association; and the PADEP Emergency Response Team, Greater Pittsburgh area for mutual aid in fire protection, first responder and lifesaving services, and hazardous materials incident response (171 ARW 2009).

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas. The city of Pittsburgh, Pennsylvania utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations. Details of development and land use in the Pittsburgh IAP vicinity are included in Section 3.4.7, *Land Use*.

##### *Explosive Safety*

The 171 ARW uses a small range of munitions required for performance of their mission. The existing munitions storage capabilities on Pittsburgh ANGTS meet the requirement for small arms deployment/training ammunition and other munitions required by the 171 ARW. Three munitions storage areas (Buildings 515, 516, and 517) have quantity-distance (QD) safety zones (171 ARW 2012a).

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*Anti-Terrorism/Force Protection*

Many of the 117 ARW military facilities at Pittsburgh ANGCS were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the PA ANG would incorporate these standards to the maximum extent practicable.

### 3.4.3.2 Flight Safety

*Flight Safety Procedures*

Aircraft flight operations from Pittsburgh ANGCS are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures*, 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

*Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight hours (AFSEC 2012). The 171 ARW recently completed their 53<sup>rd</sup> consecutive year and nearly 230,000 flying hours without a Class-A mishap (Pittsburgh ANGCS 2013).

*Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife-aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 171 ARW has an on-going BASH program through which information and assistance is freely shared between airfield users, the Pittsburgh IAP staff, and the local air traffic controllers. Most strikes occur in August and September with small birds such as blackbirds, swallows, or larks. Serious BASH-related accidents within the immediate Pittsburgh IAP area are rare and



have never resulted in a Class A mishap (Pittsburgh ANGS 2013). The 171 ARW has recorded 69 minor BASH incidents in the airfield area from 2005 to 2012, with an average of fewer than nine bird strikes per year (Pittsburgh ANGS 2013).

#### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Airbases must establish jettison areas and procedures to minimize the impact of fuel jettisoning. Ideally, jettison areas are established at altitudes above 20,000 feet AGL, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources. AFIs cover the fuel jettison procedures, and local operating policies define specific fuel ejection areas for each base. In accordance with the AFI, Pittsburgh ANGS has established local procedures for gross weight adjustments but fuel jettisoning is an emergency procedure only and is not practiced (Pittsburgh ANGS 2013).

### **3.4.4 Soils and Water**

#### **3.4.4.1 Soils**

This area of Pennsylvania is within the Appalachian Highlands on a dissected plateau that is underlain by sedimentary rocks. There are narrow, level valleys and narrow, sloping ridgetops separated by long, steep to very steep side slopes (USDA 2006). The 171 ARW installation is surrounded by steep slopes that can exceed 25 percent in some areas. The developed areas within the installation consist of a graded hilltop leveled to accommodate aircraft facilities and a series of terraces to maximize buildable land. Relief ranges from 135 to 140 feet MSL (171 ARW 2012a).

The NRCS Soil Survey for Allegheny County, Pennsylvania identifies the following eight individual soil types at the installation:

*Atkins silt loam:* This soil is typically found on floodplains from recent alluvium derived from sandstone and shale. The rating class for building site development is considered very limited due to high flooding potential and depth to saturated zone (NRCS 2013c). Approximately 5 percent of the installation is composed of this soil type.

*Ernest silt loam, 2 to 8 percent slopes:* This soil is typically found on hillslopes from colluvium derived from shale and siltstone. The rating class for building site development is considered somewhat limited due to steep slopes and depth to saturated zone. In addition, this soil type is designated as Farmland of Statewide Importance (NRCS 2013c). Approximately 3 percent of the installation is composed of this soil type.

*Gilpin-Upshur complex, very steep:* This soil is typically found on hillslopes from residuum weathered from sandstone, siltstone, and shale. The rating class for building site development is considered very limited due to steep slope and depth to hard bedrock (NRCS 2013c). Approximately 10 percent of the installation is composed of this soil type.

*Gilpin silt loam:* This soil is typically found on hills from residuum weathered from sandstone, siltstone, and shale. The rating class for building site development is considered very limited due to steep slope and depth to hard bedrock (NRCS 2013c). Approximately 3 percent of the installation is composed of this soil type.

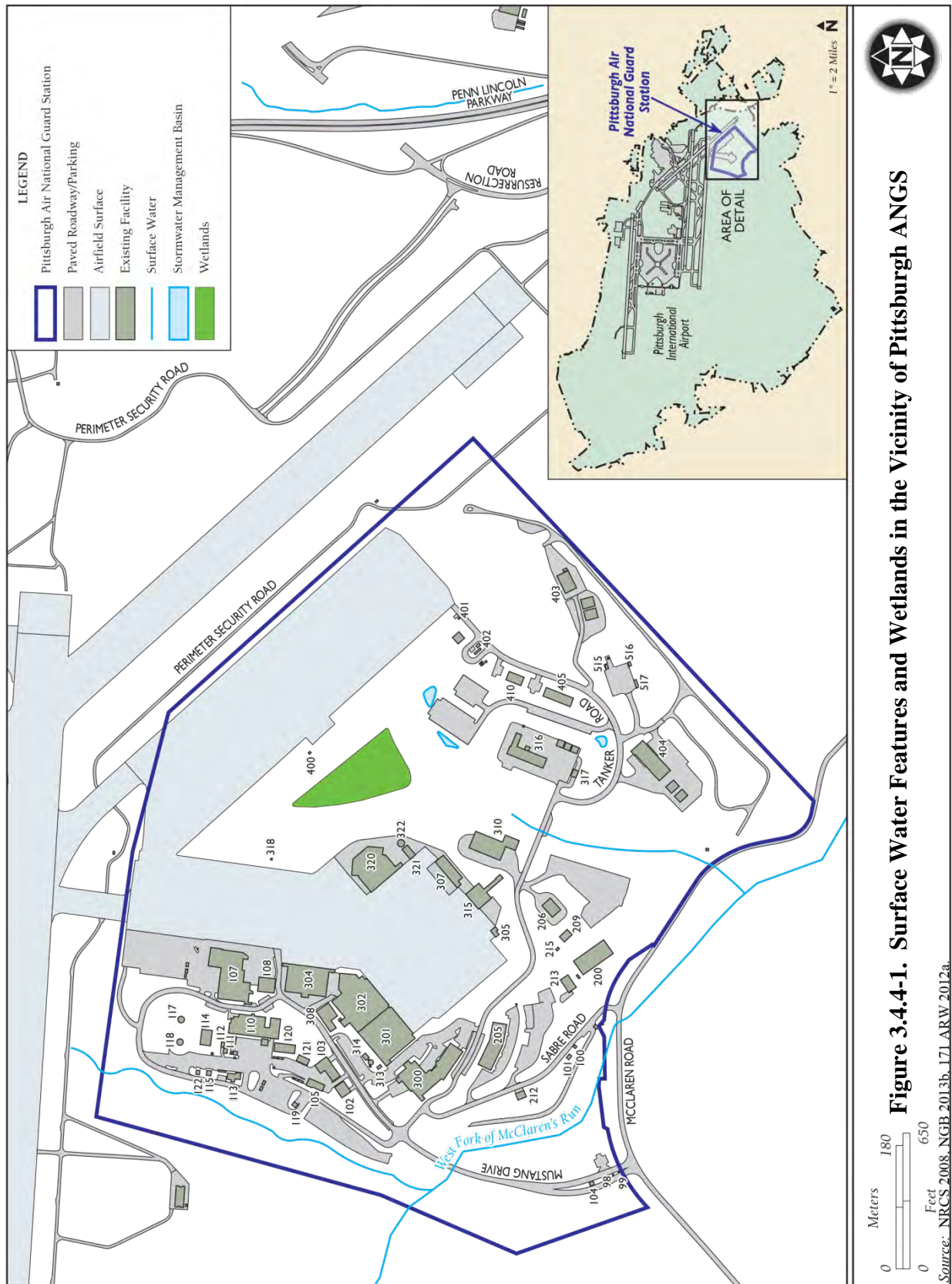
*Gilpin, Weikert, and Culleoka shaly silt loams, very steep:* This soil is typically found on hillslopes from residuum weathered from sandstone, siltstone, and shale. The rating class for building site development is considered very limited due to steep slope and depth to hard bedrock (NRCS 2013c). Approximately 3 percent of the installation is composed of this soil type.

*Urban land-Culleoka complex, gently sloping and moderately steep:* This soil consists of strongly intermingled Urban land and Culleoka soil. Urban land consists of soil from cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is not rated for this soil type (NRCS 2013c). Approximately 56 percent of the installation is composed of this soil type.

*Wharton silt loam:* This soil is typically found on hills from residuum weathered from siltstone and shale. The rating class for building site development is considered somewhat limited to very limited due to shrink-well potential, slope, and depth to saturated zone. In addition, this soil type is designated as Prime Farmland or Farmland of Statewide Importance depending upon slope (NRCS 2013c). Approximately 21 percent of the installation is composed of this soil type.

#### 3.4.4.2 Surface Water

Surface water features within the vicinity of the 171 ARW installation include McClarens Run to the southwest, a tributary of Montour Run, that ultimately discharges into the Ohio River. Surface water within the installation primarily consists of a series of man-made ditches, storm sewers, and drainage swales (Figure 3.4.4-1). Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes (171 ARW 2010a).



**Figure 3.4.4-1. Surface Water Features and Wetlands in the Vicinity of Pittsburgh ANG Station**

There are 15 stormwater outfalls on the 171 ARW installation, including an OWS outfall. Nine drainage basins receive runoff from industrial areas on the installation: SDO-001, -002, -003, -004, -006, -007, -010, -014, and -015. All outfalls ultimately discharge to McClarens Run. The nine outfalls associated with industrial activity are regulated under the Pennsylvania General Permit for Discharges of Stormwater Associated with Industrial Activity (PA-R806184). The permit is administered by the PA DEP under the auspice of the USEPA (171 ARW 2010a).

#### 3.4.4.3 Groundwater

Groundwater in this area is part of the Appalachian Plateaus aquifers. The principal coal-bearing formations are Pennsylvanian in age and consist of sequences of sandstone, shale, conglomerate, clay, coal, and minor limestone. The sandstones are the most productive aquifers, although coal beds and limestones also yield water (USGS 1995c). Historical large-scale coal mining has led to pollution issues in both groundwater and surface water in many areas by sulfur and iron exposure (PADEP 2004).

Based on topography of the installation, the direction of regional groundwater flow is to the southwest, toward McClarens Run. Site-specific groundwater flow may fluctuate based on local geology, local well use, and seasonal variations (Department of Military and Veterans Affairs 2007). The major source of groundwater near the installation is alluvial deposits in floodplains, particularly along the Allegheny and Ohio rivers (171 ARW 2012a).

#### 3.4.4.4 Floodplains

Per the FEMA Flood Insurance Rate Map for Allegheny County, Pennsylvania, Panel 302 (Map Number 42003C0302E, Effective October 4, 1995), the 171 ARW installation is located within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding (FEMA 1995).

### 3.4.5 Biological Resources

#### 3.4.5.1 Vegetation

The Pittsburgh IAP occurs within the Eastern Broadleaf Forest (Oceanic) Province. Vegetation in this region typically is characterized by a winter deciduous forest dominated by tall broadleaf trees (Bailey 1995). The majority of the 171 ARW installation is developed or actively landscaped, with approximately 15 percent containing natural vegetation. Natural vegetation is comprised of fragmented stands of deciduous forest along the southwest portion of the installation which consist of primarily sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*), American elm (*Ulmus americana*), shagbark hickory (*Carya ovata*), and box elder (*Acer negundo*). In addition, small areas of shrublands occur along the edge of the forest stands

and are comprised of species such as blackberry (*Rubus* spp.), red-panicle dogwood (*Cornus racemosa*), and multiflora rose (*Rosa multiflora*) (171 ARW 2012a).

#### 3.4.5.2 Wildlife

Due to the lack of substantial pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present in the vicinity of the airport and the 171 ARW installation consists of species that are highly adapted to developed and disturbed areas. Pittsburgh ANGS is located within the Atlantic Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found within Pittsburgh IAP or its vicinity are protected under the MBTA. Common bird species found within the vicinity of the airport include Ring-Billed Gull (*Larus delawarensis*), Canada Goose (*Branta canadensis*), American Crow (*Corvus brachyrhynchos*), European Starling (*Sternus vulgaris*), Killdeer (*Charadrius wilsonia*) and Mourning Dove (*Zenaida macroura*). Other common wildlife species include white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), Eastern gray squirrel (*Sciurus carolinensis*), opossum (*Didelphis marsupialis*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), and woodchuck (*Marmota monax*) (171 ARW 2012a).

#### 3.4.5.3 Special Status Species

No federally listed or candidate species are known to occur within the airport or on the 171 ARW installation. The potential for several federally listed species that have been observed in Allegheny County to occur within the vicinity of the airport exists; however, there is little to no habitat for these species within the airport or the installation (171 ARW 2012a). Several state listed species have been observed within Allegheny County and have the potential to occur on or within the vicinity of the installation; however, only one of these have been observed on the installation (Torrey's Rush). Torrey's Rush (*Juncus torrei*), a Pennsylvania threatened plant species, has been identified on the installation, in the area of the mitigation wetlands (see Wetland Section below). A list of these species can be found in Appendix E. There is no critical habitat located on the installation.

#### 3.4.5.4 Wetlands

One palustrine emergent/scrub-shrub wetland occurs on the installation between the east and west aircraft parking aprons. This wetland was constructed as mitigation for the wetlands that were impacted during the construction of the east aircraft parking apron in the 1990s. This wetland is associated with headwaters of two unnamed tributaries to McClaren's Run and are most likely jurisdictional wetlands (Figure 3.4.4-1) (171 ARW 2012a).

### **3.4.6 Cultural Resources**

#### **3.4.6.1 Archaeological Resources**

A majority of the 171 ARW installation is developed with buildings and pavement. Approximately 1.2 acres in the southeast portion of the installation was determined to be relatively undisturbed. This area was intensively surveyed for cultural resources in 2011. No NRHP-eligible resources were located (171 ARW 2012b, McLearen 2011). The Pennsylvania SHPO concurred with these findings (see McLearen 2011 in Appendix B4).

#### **3.4.6.2 Architectural Resources**

All 25 architectural resources at the 171 ARW installation pre-dating the end of the Cold War era or constructed before 1990 were inventoried and evaluated for NRHP eligibility (171 ARW 2012b). None of the buildings were recommended as eligible to the NRHP.

#### **3.4.6.3 Traditional Resources**

The 171 ARW installation contains no known traditional resources; however, five federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified: Cayuga Nation of New York, Onondaga Nation of New York, Seneca Nation of Indians, Tonawanda Band of Seneca Indians of New York, and Tuscarora Nation of New York.

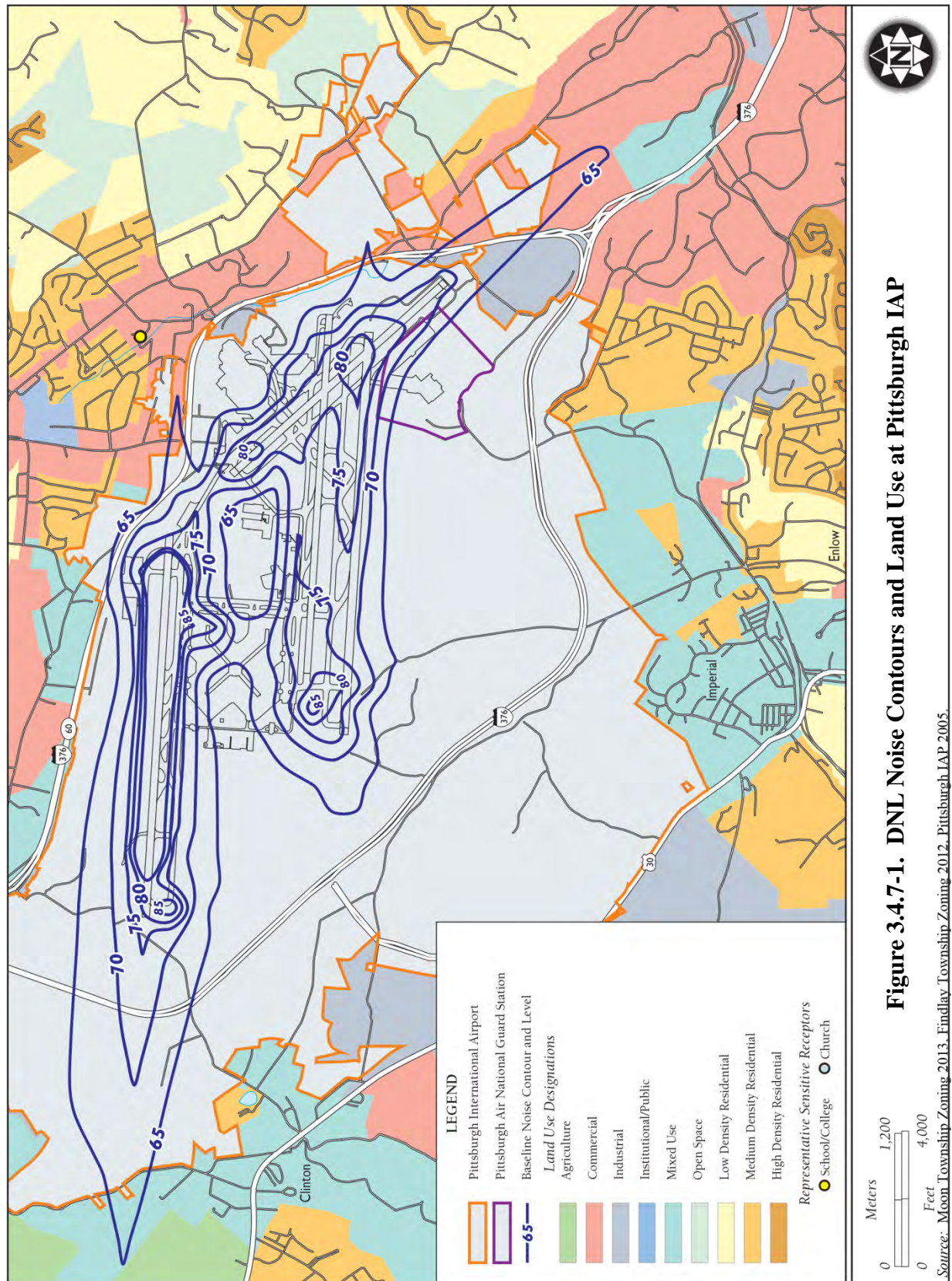
### **3.4.7 Land Use**

The 171 ARW is located at Pittsburgh IAP, in Allegheny County, Pennsylvania. Two townships are immediately adjacent to the airport: Moon Township is north and east of the Airport, and Findlay Township is west and south of the airport. Independence Township (Beaver County), North Fayette Township, Robinson Township, and Coraopolis Township are located to the west, south, southeast, and northeast of the airport, respectively. Land uses surrounding the airport include a mixture of suburban and rural land uses including Recreation/Conservation, Commercial, Industrial, and Undeveloped (Allegheny County 2008). No houses, churches, schools or other sensitive noise receptors are located within areas exposed to DNL greater than 70 dB off-airport.

Zoning surrounding the airport generally supports compatible land use planning and provides for protection of the areas surrounding Pittsburgh IAP. Zoning codes define and establish airport hazard zones height limitations and land use restrictions within these zones. This zoning protects RPZs, details of which can be found in the Safety section of Appendix A, Section A.3.

Pittsburgh IAP exposes 128.6 acres, off-airport, to noise levels between 65 dB and 70 dB DNL. Figure 3.4.7-1 shows an overlay of the baseline noise contours onto a map displaying the existing land use in the vicinity of the airfield.





**Figure 3.4.7-1. DNL Noise Contours and Land Use at Pittsburgh IAP**

Source: Moon Township Zoning 2013, Findlay Township Zoning 2012, Pittsburgh IAP 2005.



### **3.4.8 Infrastructure and Transportation**

#### **3.4.8.1 Potable Water System**

Currently, Findlay Township Water Authority is acting as a back-up source for potable water for the 171 ARW installation due to a break in the line from the Moon Township Water Authority, which is typically the primary source of potable water for the installation. A new waterline from Moon Township is in the process of design for construction. Findlay Township buys water from Moon Township, Robinson Township, and other sources (Tower 2013a). Potable water in the area is supplied primarily from four regional groundwater aquifer wells. Moon Township pumps approximately 1.18 trillion gallons of water per year to its customers (Moon Township no date). The groundwater supply is supplemented with treated surface water from the Ohio River. In FY 2012, 4.7 million gallons of potable water were supplied to the 171 ARW installation (171 ARW 2013c).

#### **3.4.8.2 Wastewater**

The 171 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including oil/water separator discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 171 ARW installation is conveyed into the municipal sewage system, operated by Moon Township Municipal Authority. The Authority's Leonard L. Nary Wastewater Treatment plant treats water from Moon, Findlay, North Fayette, and Robinson Townships, as well as the installation. The facility has a capacity of a 6.2 million gallons per day (171 ARW 2012a).

#### **3.4.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 171 ARW *SWPPP* (2010), the 171 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.4.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.4.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 171 ARW installation by Duquesne Light Company via three single phase 667 kilovolt ampere transformers and underground power lines. Natural gas is supplied by UGI Energy Services from a single 4-inch steel line. Electricity consumption for FY 2012 at the

171 ARW installation was 5,751 megawatt hours. Natural gas consumption for FY 2012 at the 171 ARW installation was 26,880 thousand cubic feet (171 ARW 2013c).

#### **3.4.8.5 Solid Waste Management**

Municipal solid waste at the 171 ARW installation is managed in accordance with the 171 ARW Solid Waste Management Plan/Qualified Recycling Program (171 ARW 2010b) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 171 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 171 ARW installation and transported to the Allied Waste Imperial Landfill.

#### **3.4.8.6 Transportation**

The 171 ARW installation is located approximately 14 miles northwest of downtown Pittsburgh and is easily accessible from several major highways. I-79 runs in a north-south direction approximately 4 miles east of the installation. I-376/SR 60 runs in a northwest-southeast direction through the Pittsburgh IAP property and provides direct access to the airport. In addition, U.S. Highway 30, a principal arterial that runs east-west south of the airport and then takes a turn to the north running parallel to the airport on the western side, also provides regional access. McClaren Road exit off of I-376 provides direct access to the main entrance for the 171 ARW installation.

### **3.4.9 Hazardous Materials and Waste**

#### **3.4.9.1 Hazardous Materials**

Hazardous materials are used at the 171 ARW installation for aircraft and vehicle operations support and maintenance. Types of hazardous substances found on the 171 ARW installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (171 ARW 2009).

Nineteen ASTs occur on the 171 ARW installation and are used to store diesel, jet fuel, motor gasoline, aqueous film forming foam, potassium acetate, developer, dye penetrant, emulsifier,

and rinse solution. There is one 1,000-gallon UST on the installation located in the POL yard used to store reclaimed JP-8 (171 ARW 2012a).

### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 171 ARW installation in 1991. ACMs identified in the insulation, floor tiles, and mastic were found in Buildings/Hangars 102, 103, 107, 110, 201, 206, 300, 301/302, 304 (171 ARW 2012a).

A LBP survey has not been conducted at the 171 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation (171 ARW 2012a).

The 171 ARW does not maintain, operate, or own any PCB equipment or PCB-contaminated equipment and the subject property is considered PCB-free (171 ARW 2008).

### 3.4.9.2 Hazardous Waste Management

The 171 ARW Oil and Hazardous Substances Spill Prevention and Response Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (171 ARW 2012c). The 171 ARW Hazardous Waste Management Plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (171 ARW 2009).

The 171 ARW is regulated as a Large Quantity Generator of hazardous waste and maintains USEPA Identification Number PAD114942832. A hazardous waste generation point is where the waste is initially created or generated. An SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are 20 SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 103, 107, 113, 121, 213, 301, 302, 304, 307, 308, 310, 316, 320, 403, 404, and 520. The installation CAP is located in Building 501/502 (171 ARW 2009, Tower 2013b).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Fifteen OWSs are located on the 171 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance areas (171 ARW 2012c).

## 3.4.9.3 Environmental Restoration Program

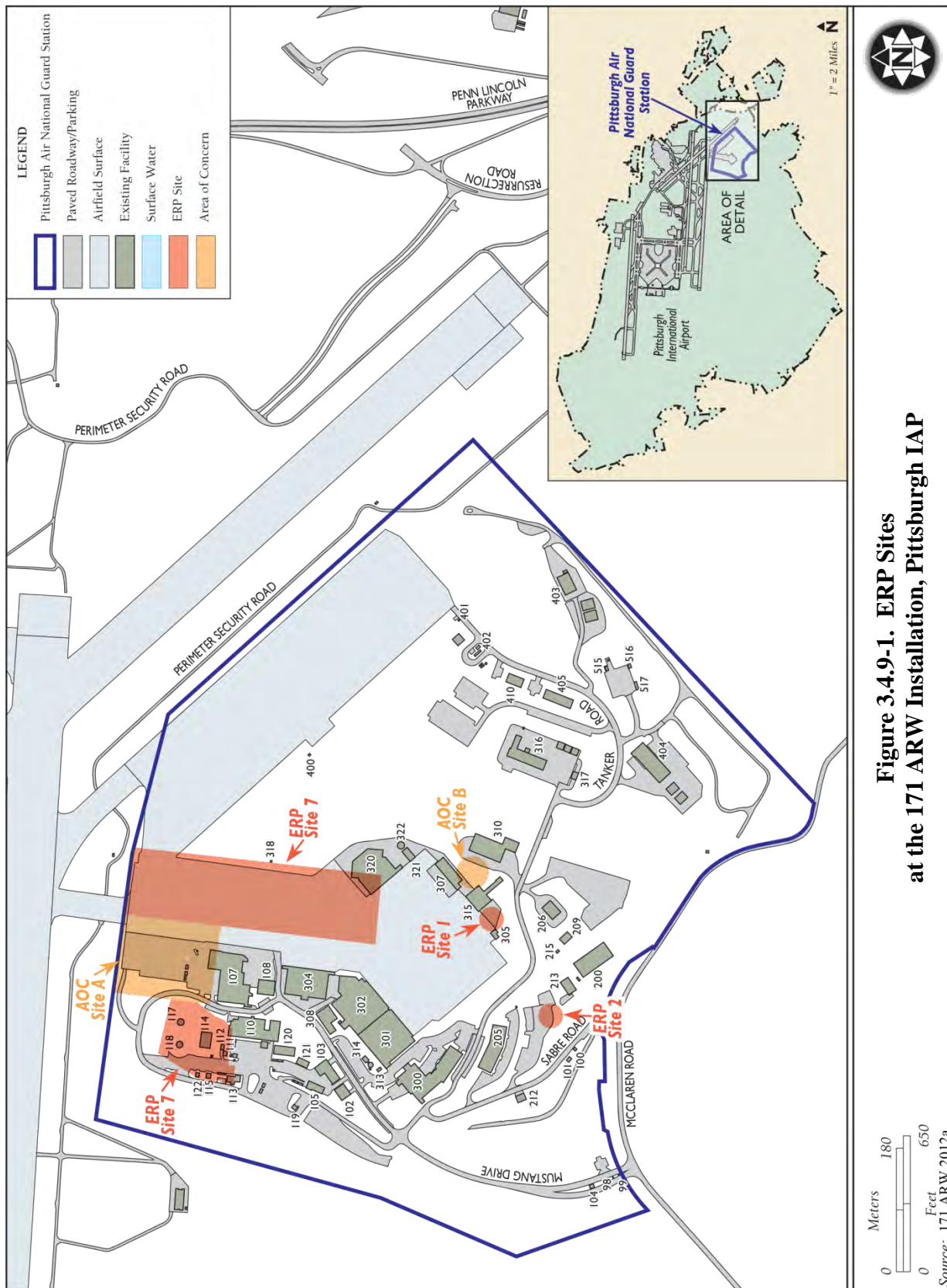
There are three closed ERP sites and two closed Areas of Concern (AOCs) at the 171 ARW installation. Table 3.4.9-1 provides details for each of these sites and Figure 3.4.9-1 shows the locations.

**Table 3.4.9-1. ERP Sites within the 171 ARW Installation**

<i>ERP/AOC Site</i>	<i>Materials of Concern</i>	<i>Status</i>
1	This site was a waste oil tank where JP-4 fuel, hydraulic, and engine oils were released from a UST. Soil and groundwater sampling performed at this site did not reveal contaminants of concern above PADEP guidelines.	Closed
2	This site was a UST for a gasoline for a motor pool area. Soil and groundwater sampling performed at this site revealed gasoline-related soil contamination at low levels. Results from a risk assessment of this area showed that contaminated soils did not pose a threat to human life or the environment.	Closed
7	This site was a POL storage area and fuel hydrant system for JP-4 fuel. Soil and groundwater sampling performed at this site did not reveal contaminants of concern above PADEP guidelines.	Closed
AOC A	This site is referred to as the Cabbage Patch Area and was used for dumping fuels, POLs, and solvents. Soil sampling results at this location did not identify contaminants in exceedance of regulatory criteria or posing a threat to human health or the environment. No further action was recommended.	Closed
AOC B	This site is referred to as the Embankment Area and was used for dumping petroleum distillate, tetrachloroethylene, methyl ethyl ketone, and other liquid wastes. Soil sampling results at this location did not identify contaminants in exceedance of regulatory criteria or posing a threat to human health or the environment. No further action was recommended.	Closed

*Notes:* ERP = Environmental Restoration Program; AOC = Area of Concern; UST = underground storage tank; PADEP = Pennsylvania Department of Environmental Protection; POL = petroleum, oil, and lubricant

*Source:* 171 ARW 2012a.



### 3.4.10 Socioeconomics

#### 3.4.10.1 Population and Employment

##### *Population*

Pittsburgh ANG is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County. The airport ROI includes portions of Moon and Findlay Townships. Current population data and estimates for the state of Pennsylvania, Allegheny County, and Findlay and Moon Townships are provided in Table 3.4.10-1. From 1990 to 2010, Allegheny County's population decreased by 113,101, approximately 9 percent (USCB 1990d, 2000d, 2010e).

**Table 3.4.10-1. Population Growth within the Vicinity of Pittsburgh ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
Pennsylvania	11,881,643	12,281,054	12,702,379
Allegheny County	1,336,449	1,281,666	1,223,348
Findlay Township	4,500	5,145	5,060
Moon Township	19,631	22,290	24,185

Source: USCB 1990d, 2000d, 2010e.

The 171 ARW currently supports a workforce authorization of 1,306, including 393 full-time and 913 part-time personnel (see Table 2.3-24).

##### *Employment and Earnings*

Table 3.4.10-2 presents total labor force and employment rates for Pennsylvania, Allegheny County, and Findlay and Moon Townships. Based on 2007-2011 ACS 5-year estimates, there were 644,951 persons in the labor force (able to work) and 598,554 employed within Allegheny County, resulting in an unemployment rate of approximately 7 percent. Top employment industries in Allegheny County include 1) educational services, and health care and social assistance; 2) professional, scientific, and management, and administrative and waste management services; and 3) retail (USCB 2011e). Principal employers include UPMC Presbyterian Shadyside, University of Pittsburgh, the federal government, Giant Eagle Inc., and PNC Bank NA (Center for Workforce Information and Analysis 2012).

**Table 3.4.10-2. Employment Data (2011) within the Vicinity of Pittsburgh ANG**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
Pennsylvania	6,456,527	5,947,873	508,654	7.9
Allegheny County	644,951	598,554	46,397	7.2
Findlay Township	2,879	2,598	281	9.8
Moon Township	13,199	12,532	667	5.1

Note: Employment numbers include individuals in the Armed Forces.

Source: USCB 2011e.

### 3.4.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 179,072 students were enrolled in schools from Kindergarten through Grade 12 in Allegheny County (USCB 2011e).

### 3.4.10.3 Housing

In 2010, the number of housing units in Allegheny County was 589,201, with a vacancy rate of approximately 9 percent (USCB 2010e).

## 3.4.11 Environmental Justice and the Protection of Children

### 3.4.11.1 Minority and Low-Income Populations

Table 3.4.11-1 displays the minority, low-income, and children under age 18 within the state of Pennsylvania, as well as the county and townships within the vicinity of Pittsburgh IAP. Approximately 19 percent of the population of Allegheny County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 18 percent for the state of Pennsylvania. The percentage of population living below the poverty level for the state of Pennsylvania (approximately 13 percent) is slightly higher than Allegheny County (approximately 12 percent) (USCB 2010e).

**Table 3.4.11-1. Population within the Vicinity of Pittsburgh ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
Pennsylvania	12,702,379	2,296,091	18.1	1,600,500	12.6	2,792,155	22.0
Allegheny County	1,223,348	226,053	18.5	151,695	12.4	241,663	19.8
Findlay Township	5,060	198	3.9	202	4.0	1,139	22.5
Moon Township	24,185	2,473	10.2	2,080	8.6	5,169	21.4

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 American Community Survey 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the Bureau of the Census determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, person in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010e, 2011f.

Table 3.4.11-2 displays the total population, total minority population, percentage minority, total low-income population, and low-income percentages for the areas in the vicinity of Pittsburgh IAP within the baseline DNL greater than 65 dB.



**Table 3.4.11-2. Population within Baseline Noise Contours, Pittsburgh ANG<sup>1</sup>**

<i>Noise Contour</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>
65-70	12	0	0	0	0
70-75	0	0	0	0	0
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010f, 2011f.

In the area surrounding Pittsburgh IAP, approximately 12 people were estimated to be affected by baseline DNL between 65 dB and 70 dB. Out of that total, none are considered to be minorities or low-income populations.

#### 3.4.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Allegheny County was approximately 241,633 (19.8 percent of the population). The state of Pennsylvania has a slightly higher percentage population of children compared to the county (22 percent). There are no on-installation housing or facilities for children located at the 171 ARW installation. Currently, there are no Kindergarten through Grade 12 off-installation schools that are exposed to aircraft DNL of 65 dB or above.

### 3.5 RICKENBACKER AIR NATIONAL GUARD STATION

Rickenbacker ANG, home of the 121 ARW of the OH ANG, is located approximately 12 miles southeast of downtown Columbus, Ohio in Franklin County. The 121 ARW installation is situated on the west side of Rickenbacker IAP, an international airport operated by the CRAA.

#### 3.5.1 Noise

To evaluate noise impacts in the vicinity of a military installation located within a commercial airport with a published FAR Part 150 Airport Noise Compatibility Study, the USAF allows for use of the FAA's INM to generate DNL noise contours. The CRAA under the FAA uses the INM computer model for generating noise contours and for Rickenbacker IAP, the FAA's INM was used. For more detailed information on the noise modeling methods see Appendix A, Section A.1.2.

##### 3.5.1.1 Baseline Operations

In August 2007, the CRAA approved a Noise Compatibility Program Update as part of the FAA's FAR Part 150 Noise Compatibility Program for Rickenbacker IAP based on operational data from a 12-month period ending April 2005. The study used the standard FAA INM program to establish noise contours based on those operations and is the FAA-approved and public document for the noise compatibility program currently in affect for the airport.

Based on aircraft operations data validated in February 2013 (FAA 2012a, 121 ARW 2013a), approximately 39,436 total aircraft operations occurred at Rickenbacker IAP during 2012; of those, the 121 ARW flew a total of 6,445 airfield operations with approximately 3 percent at night (approximately 16 percent of total operations at the airfield). These numbers were validated by the 121 ARW and Rickenbacker ATADs (FAA tower) report and are used as the basis for determining airfield operations for the Proposed Action (FAA 2012a, 121 ARW 2013a).

The current FAR Part 150 data identified 67,160 total aircraft operations that occurred at Rickenbacker IAP during the 12-month period ending April 2005. Per the request of the CRAA, the current approved Final FAR Part 150 Noise Compatibility Program Update August 2007 for Rickenbacker IAP is used as the baseline for this analysis (Gwiner 2013). The baseline aircraft operations at the airport used for this analysis differs from the current 2012 aircraft operations due to changes to airfield use by AirNet Systems Cargo with significantly reduced activity, along with reductions in general aviation and other cargo aircraft (CRAA 2007).

Table 3.5.1-1 summarizes the frequency of aircraft operations for Rickenbacker IAP based on the 2007 published FAR Part 150 Study. An aircraft operation is counted each time an aircraft

departs from the runway and each time they approach the runway. The majority of aircraft traffic includes jet cargo, charter aircraft along with based ANG KC-135, C-130, and general aviation aircraft. Although the number of aircraft operations at an airfield varies from day to day, for Rickenbacker IAP, operations are calculated for an AAD, meaning that yearly operations are averaged across all 365 days of the year. Table 3.5.1-1 reflects a total of approximately 184 aircraft operations on an AAD (67,160 divided by 365 days). Approximately 40 percent of the total operations occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.5.1-1. Current Rickenbacker IAP Annual Aircraft Operations FAR Part 150<sup>1</sup>**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>2</sup>		Grand Total <sup>2</sup>
	Day	Night <sup>3</sup>	Day	Night <sup>3</sup>	Day	Night <sup>3</sup>	
KC-135	6,570	0	6,205	365	12,775	365	13,140
Other Aircraft <sup>4</sup>	13,870	13,140	13,505	13,505	27,375	26,645	54,020
<b>Total</b>	<b>20,440</b>	<b>13,140</b>	<b>19,710</b>	<b>13,870</b>	<b>40,150</b>	<b>27,010</b>	<b>67,160</b>

Notes: 1. Operations based on currently approved FAR Part 150

2. Includes Closed Patterns (which count as two airfield operations).

3. Night –Between 10 p.m. and 7 a.m. for environmental night.

4. Other based military, civilian aircraft and transient aircraft (multiple type aircraft) including: Boeing 737, 747, and Airbus 300.

Source: CRAA 2007.

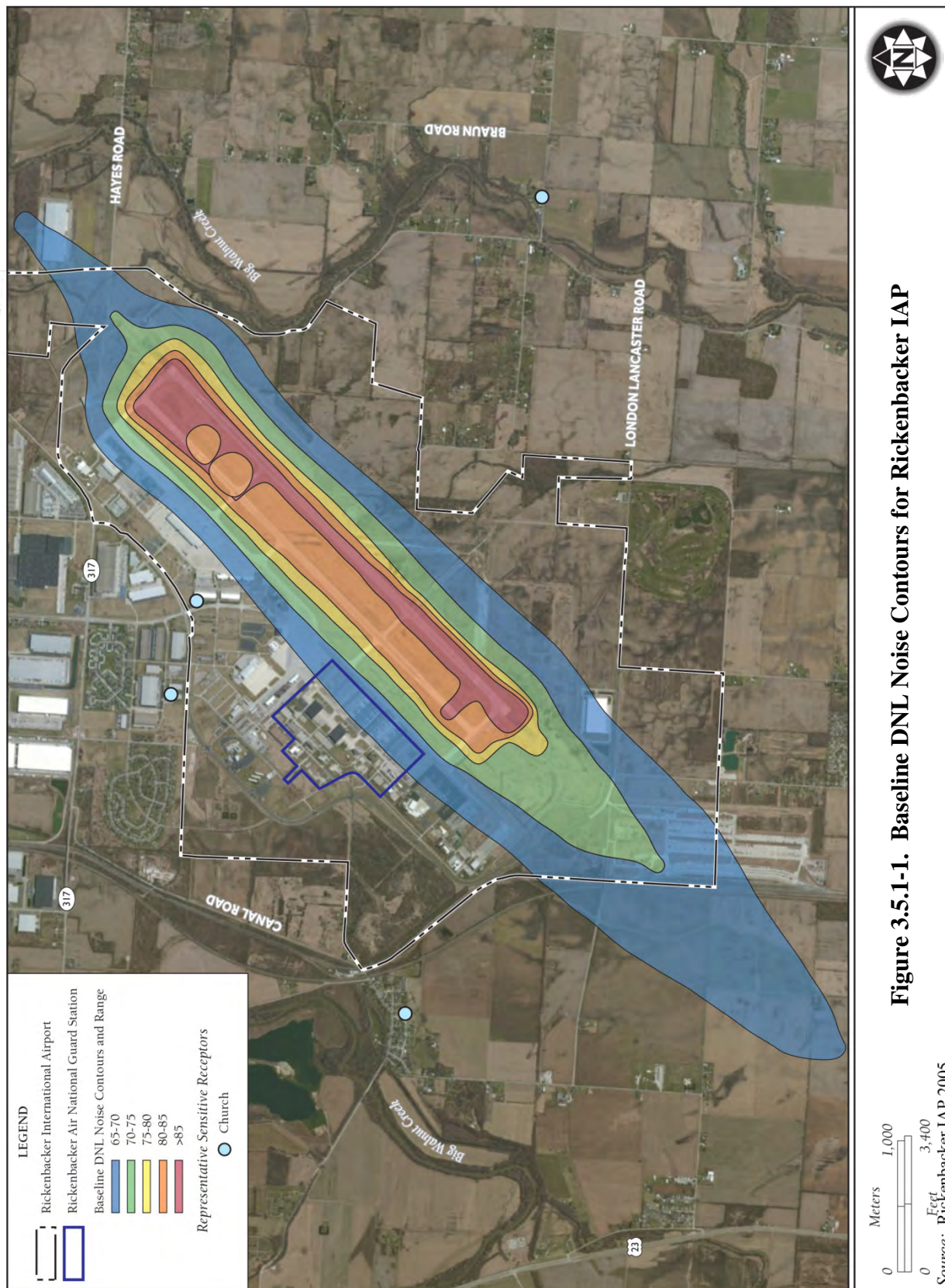
Based on the 2007 baseline data, the 121 ARW KC-135 aircraft flew a total of 13,140 annual airfield operations, or an average of 36 airfield operations a day. Approximately 3 percent of the total KC-135 operations occur during environmental night. Approximately 20 percent of total operations at Rickenbacker are accomplished by the 121 ARW KC-135 aircraft.

### 3.5.1.2 Runway and Flight Profiles

Rickenbacker IAP aircraft use VFR departures, published Standard Instrument Departures, straight in approaches, overhead approaches, published IFR or radar patterns, and VFR closed patterns along with re-entry VFR patterns as the basic flight patterns for local arrival and departures and flight training. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise*.

### 3.5.1.3 Existing Noise Environment

Noise contours developed for the baseline conditions at Rickenbacker IAP are shown in Figure 3.5.1-1. The acreage within each DNL contour on and off Rickenbacker IAP property is shown in Table 3.5.1-2. Approximately 2,359 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.5.7, *Land Use*.



**Table 3.5.1-2. Acres within Baseline Noise Contours, Rickenbacker IAP**

<i>Noise Level (dB)</i>	<i>On Airport (acres)</i>	<i>Off Airport (acres)</i>	<i>Total (acres)</i>
65-70	811	417	1,228
70-75	478	0	478
75-80	156	0	156
80-85	265	0	265
Greater than 85	232	0	232
<b>Total</b>	<b>1,942</b>	<b>417</b>	<b>2,359</b>

Notes: dB = decibel

### *Potential Hearing Loss*

As shown in Table 3.5.1-2, there is no property off the Rickenbacker IAP that falls within the 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### 3.5.1.4 Rickenbacker International Airport Noise Abatement Procedures

Rickenbacker IAP has published certain restrictions on flying activities that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations. The restrictions are published on aeronautical charts and apply to both military and civilian aircraft. The restrictions include guidance for noise abatement procedures for the airfield including noise abatement procedures in effect from 11:00 p.m. until 7:00 a.m. for departures on Runways 23L and 23R with winds 10 knots or less and arrivals on Runways 05L and 05R with winds 10 knots or less. Aircraft are advised to contact airport operations for any other noise abatement instructions or more information (SkyVector 2013c).

#### 3.5.1.5 Rickenbacker International Airport Noise Complaints Procedures

Rickenbacker IAP has an automated phone messaging system that the public can call to leave a complaint. The complaint is investigated and the individual receives a call back within 3 days. The airport planning office reviews the radar and listens to tower and ground communication to explore the noise complaints and provide a response. In 2012, Rickenbacker IAP received 17 noise complaints, 13 of which were found to be from military aircraft (primary transient military aircraft). Over the past five years, 156 noise complaints were submitted with 50 percent of those from military transient aircraft focused on the F-16, F-18, and other fighter or high performance transient aircraft (Gwiner 2013).

In addition, the 121 ARW noise complaint procedures include referring callers to the CRAA Noise Hotline at 614-239-4065. The caller may also submit noise complaints via email to the airport noise web site: noiseabatementoffice@columbusairports.com (121 ARW 2013c).



### **3.5.2 Air Quality**

#### **3.5.2.1 Regulatory Setting**

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The Ohio Environmental Protection Agency is the agency responsible for the regulation of air quality within the state of Ohio. The state of Ohio regulates air quality through the Ohio Administrative Code, Chapters 3745-14 through 3745-114. The state of Ohio has adopted the NAAQS, and has not adopted additional more stringent state standards. The NAAQS are summarized in Table 3.5.2-1.

Rickenbacker ANGS is located approximately 12 miles south of downtown Columbus, Ohio in Franklin County. The USEPA has classified the Columbus area, including all of Franklin County, as nonattainment for the O<sub>3</sub> and PM<sub>2.5</sub> NAAQS. The region is designated attainment/unclassified area for all other criteria pollutants. The Proposed Action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for ozone precursors (NO<sub>x</sub> and VOCs) is 100 tpy, and the *de minimis* emission threshold for PM<sub>2.5</sub> emissions is also 100 tpy.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

**Table 3.5.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	<b>NATIONAL STANDARDS<sup>a</sup></b>	
		<i>Primary<sup>b,c</sup></i>	<i>Secondary<sup>b,d</sup></i>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary

*Notes:* a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

*Source:* USEPA 2012.

### 3.5.2.2 Climate and Meteorology

Columbus is located in the central portion of Ohio in an area with relatively flat terrain. Situated in central Ohio in the drainage area of the Ohio River, Columbus is located on the Scioto and Olentangy rivers; two minor streams running through the city are Alum Creek and Big Walnut Creek. Columbus's weather is changeable, influenced by air masses from central and southwest Canada; air from the Gulf of Mexico reaches the region during the summer and to a lesser extent in the fall and winter. The moderate climate is characterized by four distinct seasons. Snowfall averages around 27 inches annually (Midwest Regional Climate Center 2013).



January is the coldest month, with an average minimum temperature of 20°F. July is the hottest month, with an average maximum temperature of 86°F. The average annual temperature is 52.8°F. The average annual precipitation in Columbus is 40.0 inches (Midwest Regional Climate Center 2013).

Prevailing winds in Columbus are generally westerly to southwesterly during the year. The annual average wind speed is 8.3 miles per hour (Midwest Regional Climate Center 2013).

### 3.5.2.3 Regional and Local Air Pollutant Sources

The 121 ARW is based on the western side of Rickenbacker IAP in Franklin County, Ohio. The surrounding area to the west, south, and east of the airport is mainly agricultural, with light industrial/commercial uses to the north.

The USEPA's National Emissions Inventory includes data for the year 2008 for Franklin County. Table 3.5.2-2 summarizes the regional emissions (stationary, area-wide, and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.5.2-2. Regional Emissions for Franklin County, Ohio**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	18,108	3,208	3,797	1,326	3,180	2,719
Area-Wide Source	1,124	14,821	376	11	16,452	1,764
Mobile Sources	220,807	19,397	35,271	318	1,948	1,559
<b>Total</b>	<b>240,039</b>	<b>37,426</b>	<b>39,444</b>	<b>1,655</b>	<b>21,580</b>	<b>6,042</b>

*Notes:* Numbers may not add precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.5.2.4 Baseline Air Quality

Representative background air monitoring data for the Rickenbacker ANGWS for the period 2008-2012 are shown in Table 3.5.2-3. The closest monitoring stations to Rickenbacker IAP include monitoring stations in Columbus, which measure O<sub>3</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> (2008 – 2009). NO<sub>2</sub> data were collected in Cincinnati, and SO<sub>2</sub> data were collected from 2010 through 2012 in Clark County. NO<sub>2</sub> data from Cincinnati may be conservative as the area is more developed than the area surrounding Rickenbacker IAP.

As shown in Table 3.5.2-3, the area has experienced several O<sub>3</sub> exceedances during the recent 5-year period; however, Franklin County has not been designated as an O<sub>3</sub> nonattainment area.

The Columbus area also experienced two exceedances of the 24-hour PM<sub>2.5</sub> standard in 2010. The data show that the area did not experience violations of other NAAQS.

**Table 3.5.2-3. Ambient Air Monitoring Data for the Columbus Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.087	0.074	0.079	0.079	0.102
Days above federal standard (0.075 ppm)	2	0	2	6	8
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	33.1	26.2	38.7	31	26.6
Days above federal standard (35 µg/m <sup>3</sup> )	0	0	2	0	0
Annual Average value (µg/m <sup>3</sup> )	12.8	11.5	13.1	11.9	10.7
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	82	64	138	86	74
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	2.7	3.1	3.1	2.3	3.0
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.7	1.6	2.0	1.9	2.0
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.079	0.056	0.069	0.054	0.043
98 <sup>th</sup> Percentile (ppm)	0.058	0.050	0.054	0.046	0.040
Days above federal standard (0.100 ppm)	0	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.038	0.036	0.034	0.028	0.023
99 <sup>th</sup> Percentile (ppm)	0.029	0.036	0.028	0.022	0.018
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	0	0
Peak 24-hour value (ppm)	0.013	0.012	0.014	0.013	0.010

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.5.2.5 121<sup>st</sup> Air Refueling Wing Emissions

The 121 ARW currently flies and maintains 18 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 121 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance (121 ARW 2008).

Emissions for the 121 ARW have been quantified in the *Final 2009 Air Emissions Inventory* (121 ARW 2011a). The inventory evaluated the emissions from the 121 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 100 tpy for all criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs (121 ARW 2011a).

The 121 ARW is not required to operate under a Title V Operating Permit. The 2009 Air Emissions Inventory demonstrates that total base-wide potential emissions from stationary sources are below the major source thresholds (121 ARW 2011a).

Stationary source emissions at the 121 ARW include emissions from natural gas and fuel oil fired heating units, internal combustion engines, fuel tanks, and minor sources including chemical use, aircraft deicing, and fuel cell maintenance activities. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 121 ARW considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation (121 ARW 2011a).

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #5, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified baseline airfield operations identified in Table 2.3-25, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.5.2-4.

**Table 3.5.2-4. 121 ARW Baseline Emissions at Rickenbacker ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	4.63	68.57	64.35	6.38	0.34	0.34	17,742
AGE	0.01	0.02	0.15	0.00	0.01	0.01	3,333
Engine Testing	0.11	1.55	0.43	0.07	0.01	0.01	185
POVs	4.55	67.35	3.55	0.05	0.15	0.07	2,407
<b>Total Baseline Emissions</b>	<b>9.29</b>	<b>137.50</b>	<b>68.48</b>	<b>6.50</b>	<b>0.51</b>	<b>0.42</b>	<b>23,667</b>

*Notes:* Numbers might not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* 121 ARW 2011a.

### **3.5.3 Safety**

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Rickenbacker IAP.

#### **3.5.3.1 Ground Safety**

##### *Fire/Crash Response*

ARFF services at Rickenbacker ANG S are available on a 24-hour basis. Upon notification of an in-flight or ground emergency, the crash and rescue services personnel would coordinate emergency services. ARFF equipment and personnel at Rickenbacker ANG S meet USAF requirements (Headquarters AMC and NGB 2013b).

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas. The city of Columbus, Ohio utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations. Details of development and land use in the Rickenbacker IAP vicinity are included in Section 3.5.7, *Land Use*.

##### *Explosive Safety*

No QD arcs exist at Rickenbacker IAP as there are no storage facilities of any hazardous materials on the installation (Headquarters AMC and NGB 2013b).

##### *Anti-Terrorism/Force Protection*

Many of the military facilities at the 121 ARW installation at Rickenbacker ANG S were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the 121 ARW would incorporate these standards to the maximum extent practicable.

### 3.5.3.2 Flight Safety

#### *Flight Safety Procedures*

Aircraft flight operations from Rickenbacker ANG S are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures*, 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

#### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flying hours (AFSEC 2012). The last Class A mishap of a 121 ARW aircraft at the Rickenbacker airfield was in 2002 (Buzzard 2013).

#### *Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife-aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 121 ARW has an on-going BASH program through which information and assistance is freely shared between airfield users, the Rickenbacker IAP staff, and the local air traffic controllers. Serious BASH-related accidents within the immediate Rickenbacker IAP area are unusual and have never resulted in a Class A mishap (Buzzard 2013). The 121 ARW has recently recorded 21 minor BASH incidents in 2010, 19 in 2011, and 13 in 2012, and an average over 8 years of 22 incidents (Buzzard 2013).

#### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Airbases must establish jettison areas and procedures to minimize the impact of fuel jettisoning. Ideally, jettison areas are established at

altitudes above 20,000 feet AGL, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources

The primary fuel jettison area for the 121 ARW is within the Buckeye MOA, and above 20,000 feet AGL (121 ARW 2011b). The aircrew would follow fuel jettisoning procedures in AFI 11-2KC135, C/KC-135 Operations Procedures.

### **3.5.4 Soils and Water**

#### **3.5.4.1 Soils**

This area of Ohio is within the Columbus Valley, which was formed by glaciers and has relatively level to gently rolling terrain. This area is characterized by limited relief except near streams, glacial moraines, or resistant bedrock (USDA 2006). The 121 ARW installation is located on relatively flat improved land with relief ranging from 734 to 744 feet MSL (121 ARW 2010).

The NRCS Soil Survey for Franklin County, Ohio identifies the following two individual soil types at the installation:

*Kokomo-Urban land complex.* This soil, typically found in shallow depressions and drainages, is composed of silty and clayey till. The rating class for building site development is considered very limited due to ponding, shrink-swell potential, and depth to saturated zone (NRCS 2013d). Approximately 20 percent of the installation is composed of this soil type.

*Crosby-Urban land complex, 0 to 2 percent slopes.* This soil consists of strongly intermingled Urban land and Crosby soil. Urban land consists of soil from cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is not rated for this soil type (NRCS 2013d). Approximately 80 percent of the installation is composed of this soil type.

#### **3.5.4.2 Surface Water**

The 121 ARW installation is located within the Scioto River Watershed that encompasses over 6,510 square miles within the state of Ohio (USEPA 2013e) (Figure 3.5.4-1). The Scioto River Watershed drains a very diverse landscape from rural to dense urban environments and covers portions of Crawford, Delaware, Franklin, Hardin, Logan, Madison, and Union counties. The Scioto River originates near Roundhead in Hardin County, running south through central Ohio before emptying into the Ohio River at the confluence in Portsmouth, Ohio (Mid-Ohio Regional Planning Commission 2012).

Surface water features within the vicinity of the 121 ARW installation include Scioto River and Big Walnut Creek to the east and Walnut Creek to the west. Surface water within the installation primarily consists of a series of man-made ditches, storm sewers, and drainage swales. Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes.

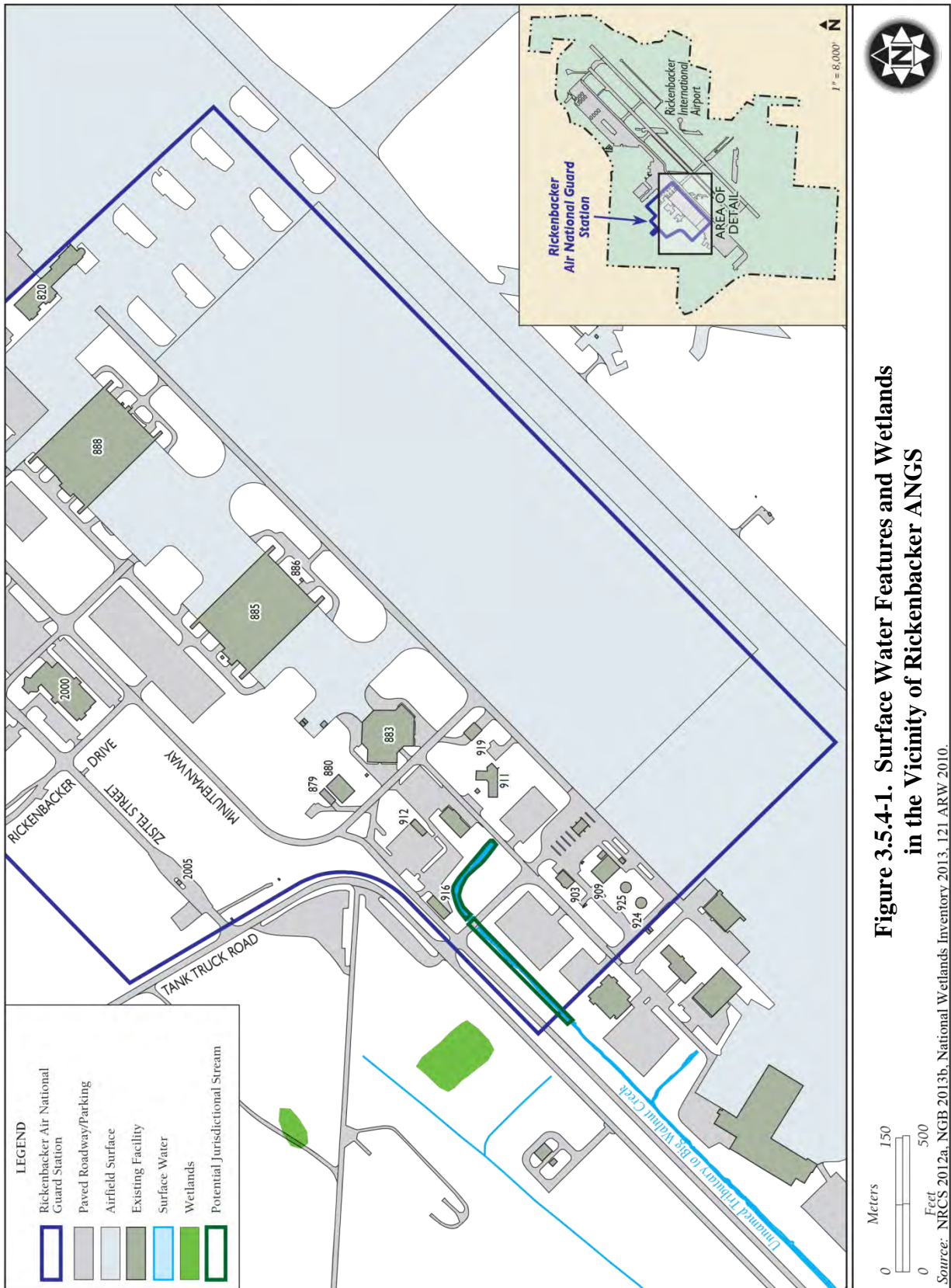
There are two primary drainage areas on the installation, SDO-014 and SDO-601. Both outfalls, SDO-014 and -601, exit the installation via the SDO-014 drainage ditch that discharges into an unnamed tributary that ultimately converges with the Big Walnut Creek. These two outfalls are regulated under the Ohio Industrial Stormwater General Permit (OHR000005). The permit is administered by the Ohio Environmental Protection Agency under the auspice of the USEPA (121 ARW 2009).

#### 3.5.4.3 Groundwater

Groundwater in this area is part of the Central Lowland Aquifer Province. Central Lowland aquifers are generally comprised of unconsolidated sand and gravel deposits and consolidated sandstone, limestone, and dolomite. The unconsolidated sand and gravel deposits, which are collectively called the surficial aquifer system, supply more than 50 percent of the fresh groundwater withdrawn in the Central Lowland Province, and are primarily glacial in origin (USGS 1995d).

Three aquifers have been identified beneath the 121 ARW installation: the upper water-bearing zone, the intermediate aquifer, and the deep aquifer. The upper water-bearing zone is found beneath all portions of the installation, with the top of the water table typically less than 10 feet below ground surface. Groundwater flow direction and gradient in the upper zone is controlled primarily by surface topography, including the configuration of the drainage system and the locations of the creeks in the area. A north/south trending groundwater divide is located in the central portion of the installation. Groundwater west of this divide flows southwest toward Big Walnut Creek. Groundwater east of the divide flows southeast toward Little Walnut Creek (121 ARW 2010).





The intermediate and deep aquifers are confined. The intermediate aquifer is the shallowest aquifer capable of supporting a water supply adequate for domestic use. It is present beneath the installation at depths of between 60 and 100 feet below ground surface with a west and west southwest gradient. The deep aquifer lies at depths of between 130 and 210 feet below ground surface, where it meets a shale bedrock layer. The gradient of the deep aquifer is west and west southwest (121 ARW 2010).

#### 3.5.4.4 Floodplains

A majority of the installation lies within the FEMA Flood Insurance Rate Map for Franklin County, Ohio, Panel 437 (Map Number 39049C0437K, Effective June 17, 2008) within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding. The northern portion of the installation lies within Panel 433 (Map Number 39049C0433K) also determined to be Zone X (FEMA 2008).

### 3.5.5 Biological Resources

#### 3.5.5.1 Vegetation

The Rickenbacker IAP occurs within the ecotone between the Eastern Broadleaf Forest Continental and Oceanic Provinces. Vegetation in this region typically is characterized by deciduous forests dominated by tall broadleaf trees often with a drought-resistant oak-hickory association in the western portion of the province. Dominant trees within these forests include white oak (*Quercus alba*), red oak (*Quercus rubra*), black oak (*Quercus velutina*), bitternut hickory (*Carya cordiformis*), and shagbark hickory (*Carya ovata*) (Bailey 1995). The majority of the airport is developed or actively landscaped, with little natural vegetation or habitat remaining. A few small, hardwood forested areas occur near the southwest, south, and east sides of the 121 ARW installation.

#### 3.5.5.2 Wildlife

Due to the lack of substantial pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present at the airport and the 121 ARW ANGTS consists of species that are highly adapted to developed and disturbed areas. Rickenbacker ANGTS is located within the Mississippi Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found at Rickenbacker IAP or its vicinity are protected under the MBTA. Common bird species include Turkey Vultures (*Cathartes auru*), Rock Pigeons (*Columbia livia*), House Sparrows (*Passer domesticus*), Red-tailed Hawks (*Buteo jamaicensis*), Rough-legged Hawks

(*Buteo lagopus*), Great Horned Owls (*Bubo virginianus*), Barn Owls (*Tyto alba*), Screech Owls (*Otus asio*), American Goldfinch (*Carduelis tristis*), Killdeer (*Charadrius vociferous*), Blue Jay (*Cyanocitta cristata*), Horned Lark (*Eremophila alpestris*), Barn Swallow (*Hirundo rustica*), European Starling (*Sturnus vulgaris*), and Mourning Dove (*Zenaida macroura*). Other common wildlife species observed in or near the airport include white-tailed deer (*Odocoileus virginianus*), woodchuck (*Marmota monax*), eastern gray squirrel (*Sciurus carolinensis*), and spring frog (*Hyla* sp.) (121 ARW 2010, 2011c).

#### 3.5.5.3 Special Status Species

No federally listed or candidate species are known to occur within the airport or on the 121 ARW installation. The potential for several federally listed species to occur within Franklin County within the vicinity of the airport exists; however, there is little to no habitat for these species within the airport or the installation (USFWS 2005). One state endangered species, the Northern Harrier (*Circus cyaneus*), was observed during a 2004 survey of the airport. However, no nesting habitat (i.e., shrubby thickets) occurs within the airport boundaries. Several other state listed species have been observed within Franklin County and have the potential to occur on or within the vicinity of the installation; however, none of these have been observed on the installation. A list of these species can be found in Appendix E. There is no critical habitat located on the installation (Ohio Department of Natural Resources 2012; USFWS 2005, 2010).

#### 3.5.5.4 Wetlands

A formal wetland delineation was conducted on the 121 ARW installation in 2005. This delineation identified only one jurisdictional stream in the northwest corner of the installation. This stream is an unnamed tributary to Big Walnut Creek and has a small wetland fringe immediately adjacent estimated to be 0.05 acre. No other jurisdictional wetlands or waters of the U.S. were identified within the installation boundaries (121 ARW 2010, OH ANG 2006) (see Figure 3.5.4-1).

A small drainage ditch is located near the intersection of Second Street and Tank Truck Road, as shown in Figure 3.5.4-1. This ditch is approximately 30 feet wide and flows to the northwest and eventually drains to Big Walnut Creek via a network of ditches. Although this ditch has not been surveyed, it is similar to other ditches (including the one surveyed during the 2005 delineation) on and around the airport and it is therefore likely a jurisdictional stream (121 ARW 2010, OH ANG 2006).

### **3.5.6 Cultural Resources**

#### **3.5.6.1 Archaeological Resources**

The entire 121 ARW installation at Rickenbacker has been intensively surveyed for archaeological resources. Three archaeological sites have been recorded on the installation. Sites 33FR2652 and 33FR2653 are both isolated prehistoric artifacts found in disturbed soil contexts (National Guard Bureau 2008). These sites are not considered eligible to the NRHP and the Ohio SHPO has concurred (see Snyder 2007 in Appendix B4). Site 33FR2844 was discovered in 1985 during excavation for a new building foundation. It was described as a multi-component archaeological site consisting of two historic burials with associated historic coffin materials, a historic dump, and a prehistoric lithic scatter. The site was determined eligible for inclusion on the NRHP (Ohio ANG 2011).

#### **3.5.6.2 Architectural Resources**

Eighteen buildings within the 121 ARW property pre-dating the end of the Cold War-era (pre-1990) were inventoried in 2006. Two hangars (Hangars 885 and 888) are considered eligible for listing in the NRHP under criterion A and criterion C (121 ARW 2011d). The remaining 16 buildings are not eligible for listing in the NRHP. The Ohio Historic Preservation Office has concurred with these eligibility determinations (121 ARW 2011d, Snyder 2007).

#### **3.5.6.3 Traditional Resources**

The 121 ARW installation contains no known traditional resources; however, 13 federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified: Citizen Potawatomi Nation, Delaware Nation, Prairie Band of Potawatomi Nation, Eastern Shawnee Tribe of Oklahoma, Forest County Potawatomi Community, Hannahville Indian Community, Miami Tribe of Oklahoma, Ottawa Tribe of Oklahoma, Peoria Tribe of Indians Oklahoma, Pokagon Band of Potawatomi Indians, Shawnee Tribe, Turtle Mountain Band of Chippewa Indians of North Dakota, and Wyandotte Nation.

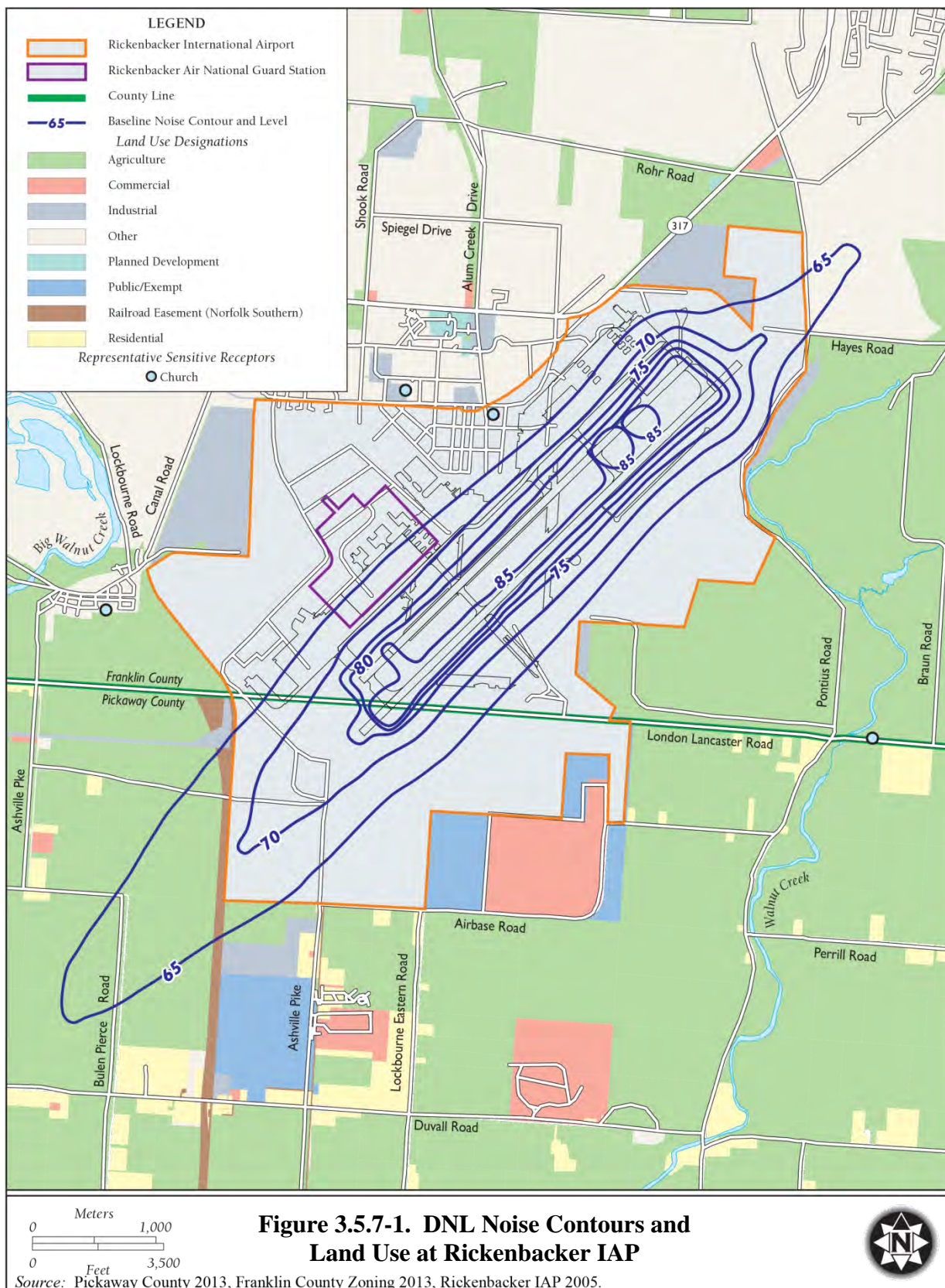
### **3.5.7 Land Use**

Rickenbacker ANGSC operates as a tenant activity of Rickenbacker IAP, which operates military, commercial, and cargo flights. The entire airport occupies 4,342 acres and is located 10 miles south of the central business district of Columbus, Ohio, near the village of Lockbourne in southern Franklin County and the northernmost part of Pickaway County.

Zoning surrounding the airport generally supports compatible land use planning and provides for protection of the areas surrounding Rickenbacker IAP. Comprehensive Land Use plans adopted by Franklin and Pickaway Counties guide long-term planning. Hamilton Township land use codes define and established airport hazard zones, height limitations, and land use restrictions within these zones. This zoning protects RPZs from incompatible land use. Detailed descriptions of RPZs can be found in the Safety section of Appendix A, Section A.3. Land use in the areas surrounding the airfield is predominantly Agricultural/Open Space interspersed with pockets of single-family residential parcels. Commercial use dominates along the northwest boundary of the airfield in Hamilton Township. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB and 70 dB DNL off-airport noise contour areas (CRAA 2007).

Figure 3.5.7-1 is an overlay of the baseline noise contours onto a map displaying the existing land use in the vicinity of the installation. The impact of baseline airfield activities on surrounding communities in these areas is limited. Current noise levels between 65 dB DNL and 70 dB DNL expose off-base areas of Agricultural and Industrial to the southwest in Pickaway County and to a lesser degree to the northeast of the airport in Franklin County. Both land use designations are considered compatible uses under Federal Interagency Committee on Urban Noise (FICUN) standards found in Appendix A, Section A.7 (CRAA 2007).





### **3.5.8 Infrastructure and Transportation**

#### **3.5.8.1 Potable Water System**

Potable water for the 121 ARW installation is provided by the Franklin County Parsons Avenue Water Treatment Plant operated by the City of Columbus (121 ARW 2010). Potable water in the area is supplied primarily from the regional groundwater aquifer wells. The City of Columbus Water Division pumps approximately 190 trillion gallons of water per year to its customers. The groundwater supply is supplemented with treated surface water from the Scioto River and the Big Walnut Creek (Franklin County Department of Sanitary Engineering 2010). In CY 2012, 1.8 trillion gallons of potable water was supplied to the 121 ARW installation (121 ARW 2013d).

#### **3.5.8.2 Wastewater**

The 121 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including OWS discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 121 ARW installation is conveyed into the municipal sewage system, operated by the City of Columbus to the Columbus Southerly Wastewater Treatment Plant. The facility has a capacity of 114 million gallons per day but typically receives 96 million gallons of wastewater per day for treatment (City of Columbus n.d.).

#### **3.5.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 121 ARW SWPPP (2009), the 121 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.5.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.5.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 121 ARW installation by South-Central Power via an aboveground, 46,000-volt primary power line that was recently buried on the northern half of the installation. Natural gas is supplied by Columbia Gas of Ohio via main lines ranging in size from 0.5 inch to 4 inches in diameter. Electricity consumption for CY 2012 at the 121 ARW installation was 4,999,752 kilowatt hours. Natural gas consumption for CY 2012 at the 121 ARW installation was 219,801 hundred cubic feet (121 ARW 2013d).



### 3.5.8.5 Solid Waste Management

Municipal solid waste at the 121 ARW installation is managed in accordance with the *121 ARW Solid Waste Management Plan* (121 ARW 2013e) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 121 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 121 ARW installation and transported to the Franklin County Landfill.

### 3.5.8.6 Transportation

The 121 ARW installation is located within close proximity to several major highways. I-70 runs in an east-west direction approximately 8 miles north of the installation. I-270 runs in a northwest-southeast direction approximately 4 miles north of the installation and provides regional access to Rickenbacker IAP and the Rickenbacker ANG. SR 317 provides direct access to Rickenbacker IAP. The principal access route to the airport is Alum Creek Drive, a four-lane arterial road that intersects I-70 and I-270, linking the airport to the regional ground transportation network. U.S. Highway 23, a principal arterial that runs north-south approximately 3 miles west of the airport and intersects I-270, also provides regional access. This highway intersects with Groveport Road, an arterial that provides access to the airport.

Rickenbacker Drive provides vehicle access to the road network and main cantonment area of the installation. The secondary entrance to the installation, Gate N-5, is typically used only by contractors (e.g., delivery of supplies by truck) to access the installation. This gate enters the installation off Tank Truck Road on the west side of the installation. Tank Truck Road connects to Zistel Street, which also connects with Rickenbacker Drive.

## 3.5.9 Hazardous Materials and Waste

### 3.5.9.1 Hazardous Materials

Hazardous materials are used at the 121 ARW installation for aircraft operations support and maintenance, including POL management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight

simulation. Types of hazardous substances found on the 121 ARW installation include strippers, batteries, spent cleaners, aerosols, paints, solvents, waste oils, hydraulic fluid, flammable and combustible liquids, acids, corrosives, and recovered fuels (121 ARW 2008). The primary storage facility for hazardous materials on the installation is in Building 872 (121 ARW 2006).

Sixteen ASTs are located on the 121 ARW installation and are used to store propylene glycol, gasoline, diesel, jet fuel, used oil, and used hydraulic oil. USTs were previously used at the installation to store kerosene, diesel, fuel oil, waste oil, jet fuel, gasoline, hydraulic fluid, and liquid propane. All USTs were removed from the 121 ARW installation in 1994 (121 ARW 2006).

#### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 121 ARW installation in 1995. ACM identified in the insulation, floor tiles, and mastic were found in Buildings 846 and 872 (121 ARW 2006).

A LBP survey has not been conducted at the 121 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation. Lead abatement was conducted in 2004 at Hangars 885 and 888 (121 ARW 2006).

The 121 ARW installation is permitted by the Nuclear Regulatory Commission for use of radioactive material in chemical agent monitoring devices (Permit No. OH-30567-01/00AFP). These devices are returned to the manufacturer for repair and disposal (121 ARW 2006).

The 121 ARW does not maintain, operate, or own any PCB equipment or PCB-contaminated equipment and the subject property is considered PCB-free (121 ARW 2006).

#### **3.5.9.2 Hazardous Waste Management**

The 121 ARW Oil and Hazardous Substances Spill Prevention and Response Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (121 ARW 2012). The 121 ARW Hazardous Waste Management plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (121 ARW 2008).

The 121 ARW is regulated as a Small Quantity Generator of hazardous waste and maintains USEPA Identification Number OH0000553829. A hazardous waste generation point is where

the waste is initially created or generated. An SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are 15 SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 888, 2000, 883, 885, 872, and 846. The installation CAP is located in Building 872 (121 ARW 2008).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. There are currently five OWSs located on the 121 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance areas (121 ARW 2006).

### 3.5.9.3 Environmental Restoration Program

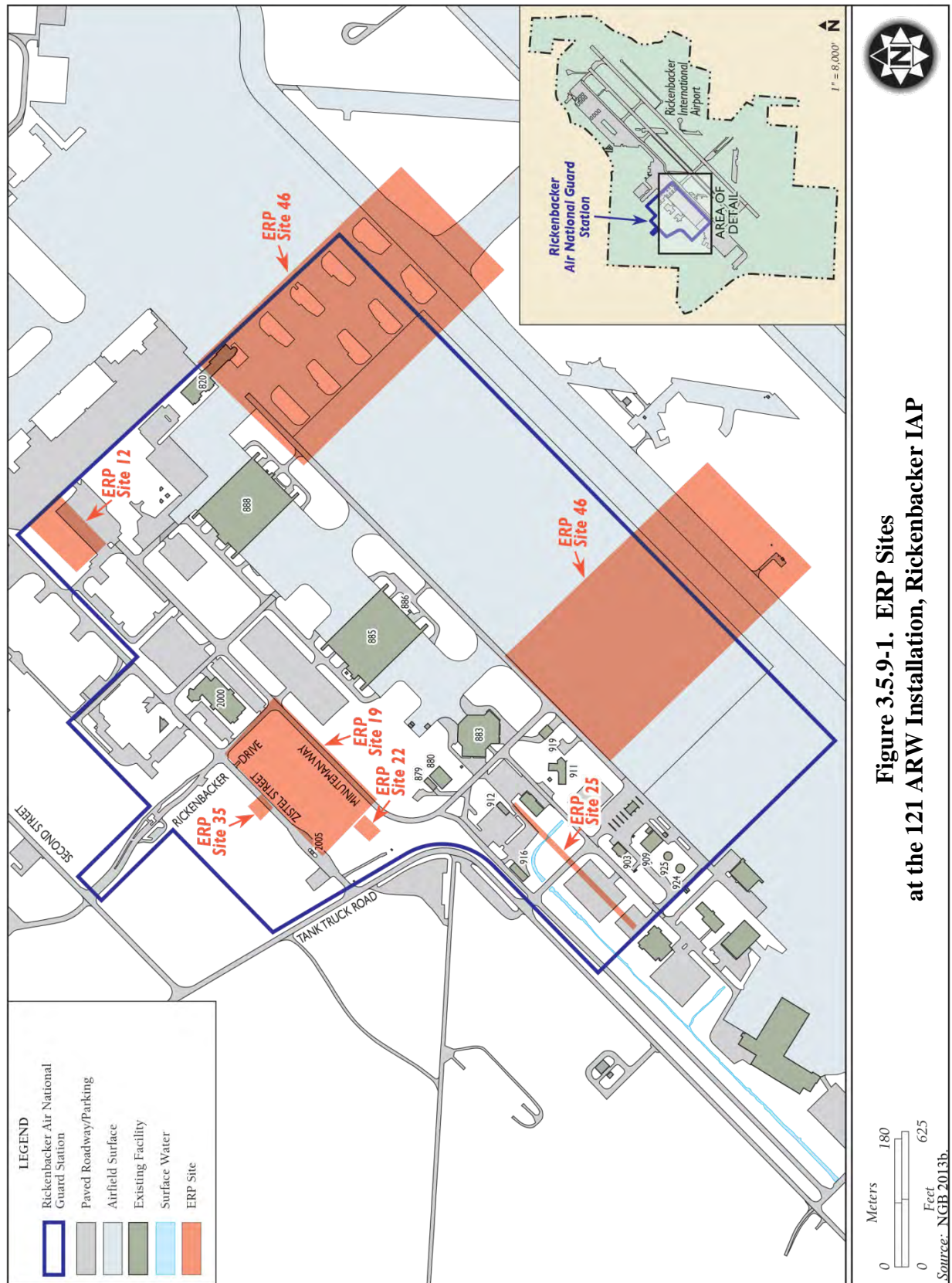
There is one active ERP site and five closed sites located on the 121 ARW installation. Table 3.5.9-1 provides details for each of these sites and Figure 3.5.9-1 shows the locations.

**Table 3.5.9-1. ERP Sites within the 121 ARW Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
12	Old drum storage area that continued until 1984. Some drums contained methyl ethyl ketone, solvents, and paint strippers. Investigations determined that groundwater on the northwest side of the site was contaminated with chlorinated solvents. Groundwater remediation was performed to reduce contaminant concentrations below detection limits. In 1995 the southeast portion of the site was paved to create a parking lot for Building 887. In 1996, soils and grass were placed on the remaining portion of the site.	Active
46	Formerly known as AOC A. This site was investigated as part of a jet fuel pipeline investigation. Tier 1 and Tier 2 Bureau of Underground Storage Tank Regulation investigations were conducted and petroleum contamination levels were found to be below Bureau of Underground Storage Tank Regulation limits. Therefore, it was determined that remedial actions were not necessary.	Closed
19	Known as the North Coal Pile, this location was a concrete pad used for holding up to 6,000 tons of coal soaked in fuel oil. Arsenic, cadmium, chromium, mercury, lead, and nickel were detected in the groundwater underneath the site and polynuclear aromatic hydrocarbons were found in the soil and sediments.	Closed
22	This site was located behind the heating plant and adjacent to the former North Coal Pile and consisted of a concrete pad for drum storage. The concrete pad was removed and an interim remedial action was conducted to remove and treat the contaminated soils.	Closed
25	This includes all of the open drainage ditches throughout the installation which have had spills and leaks of hazardous materials and petroleum products discharged into them in the past. VOCs, semi-volatile organic compounds, pesticides, and metals were detected at several sites out of 51 sediment sampling locations.	Closed
35	Former UST that was removed in 1991.	Closed

*Notes:* AOC = Area of Concern; VOC = volatile organic compound; UST = underground storage tank

*Source:* 121 ARW 2006, 2010.



### 3.5.10 Socioeconomics

#### 3.5.10.1 Population and Employment

##### *Population*

Rickenbacker ANG is located approximately 12 miles southeast of downtown Columbus in Franklin County. Current population data and estimates for the state of Ohio, Franklin, and Pickaway counties, Groveport and Lockbourne Villages, and Hamilton, Harrison, and Madison Townships are provided in Table 3.5.10-1. From 1990 to 2010, Franklin County's population increased by 201,977, an increase of approximately 21 percent. Pickaway County grew by 7,443 between 1990 and 2010, an increase of approximately 15 percent (USCB 1990e, 2000e, 2010g).

**Table 3.5.10-1. Population Growth within the Vicinity of Rickenbacker ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
Ohio	10,847,115	11,353,140	11,536,504
Franklin County	961,437	1,068,978	1,163,414
Pickaway County	48,255	52,727	55,698
Groveport Village <sup>1</sup>	2,948	3,865	5,363
Lockbourne Village <sup>1</sup>	N/A	280	237
Hamilton Township	9,746	7,950	8,260
Harrison Township	5,292	6,424	7,593
Madison Township	18,749	21,243	23,509

*Notes:* 1990 census data was not available for this village.

N/A = not available

*Source:* USCB 1990e, 2000e, 2010g.

The 121 ARW currently supports a workforce authorization of 1,497, including 442 full-time and 1,055 part-time personnel (see Table 2.3-30).

##### *Employment and Earnings*

Table 3.5.10-2 presents total labor force and employment rates for Ohio, Franklin and Pickaway counties, and Groveport and Lockbourne Villages. Based on 2007-2011 ACS 5-year estimates, there were 632,774 persons in the labor force (able to work) and 580,359 employed within Franklin County, resulting in an unemployment rate of approximately 8 percent. Labor force estimates for Pickaway County include 25,074 persons, with 23,184 employed, resulting in an unemployment rate of approximately 7 percent. Top employment industries in Franklin County include 1) educational services, and health care and social assistance; 2) retail; and 3) professional, scientific, and management, and administrative and waste management services (USCB 2011g). Principal employers include state of Ohio, The Ohio State University, JP Morgan Chase, Nationwide, and Ohio Health (Franklin County 2010). Top employment industries in Pickaway County include 1) educational services, and health care and social

assistance; 2) manufacturing; and 3) retail (USCB 2011g). Principal employers include ALSO Metals Corporation, Berger Health System, Circle Plastics/TriMold LLC, Circleville City Schools, and DuPont (Pickaway Progress Partnership 2013).

**Table 3.5.10-2. Employment Data (2011) within the Vicinity of Rickenbacker ANG<sup>1</sup>**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
Ohio	5,883,960	5,338,072	545,888	9.2
Franklin County	632,774	580,359	52,415	8.3
Pickaway County	25,074	23,184	1,918	7.6
Groveport Village	2,973	2,842	131	4.4
Lockbourne Village	139	112	27	19.4
Hamilton Township	4,089	3,404	685	16.8
Harrison Township	3,710	3,443	267	7.2
Madison Township	12,473	11,612	861	6.9

*Note:* 1. Employment numbers include individuals in the Armed Forces and are from the 2007-2011 American Community Survey 5-Year Estimates.

*Source:* USCB 2011g.

### 3.5.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 195,535 students were enrolled in schools from Kindergarten through Grade 12 in Franklin County. In Pickaway County, 10,658 students were enrolled in schools from Kindergarten through Grade 12 (USCB 2011g).

### 3.5.10.3 Housing

In 2010, the number of housing units in Franklin County was 525,186, with a vacancy rate of approximately 10 percent. In the Pickaway County in 2010, there were a total of 21,275 housing units with a vacancy rate of approximately 7 percent (USCB 2010g).

## 3.5.11 Environmental Justice and the Protection of Children

### 3.5.11.1 Minority and Low-Income Populations

Table 3.5.11-1 displays the minority, low-income, and children under age 18 within the state of Ohio, as well as the counties, villages, and townships within the vicinity of Rickenbacker IAP. Approximately 31 percent of the population of Franklin County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 17 percent for the state of Ohio. Pickaway County has a lower proportion of minorities (5.5 percent) than Franklin County or the state (USCB 2010g).



The percentage of population living below the poverty level for the state of Ohio (approximately 15 percent) is the lower than Franklin County (approximately 17 percent), but higher than Pickaway County (approximately 13 percent) (USCB 2010g).

**Table 3.5.11-1. Population within the Vicinity of Rickenbacker ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
Ohio	11,536,504	1,997,067	17.3	1,707,403	14.8	2,730,751	23.7
Franklin County	1,163,414	357,797	30.8	202,434	17.4	278,542	23.9
Pickaway County	55,698	3,043	5.5	7,296	13.1	13,157	23.6
Groveport Village	5,363	962	17.9	493	9.2	1,271	23.7
Lockbourne Village	237	5	2.1	14	5.8	58	24.5
Hamilton Township	8,260	621	7.5	942	11.4	1,897	23.0
Harrison Township	7,593	266	3.5	1,496	19.7	2,141	28.2
Madison Township	23,509	3,856	16.4	2,092	8.9	5,953	25.3

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010g.

Currently there are no residential populations, including minority or low-income populations, located within the vicinity of Rickenbacker IAP within the baseline DNL greater than 65 dB or above.

### 3.5.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Franklin County was approximately 278,542 (approximately 24 percent of the population). In 2010, the number of children under the age of 18 living in Pickaway County was approximately 13,157 (approximately 24 percent of the population) (Table 3.5.11-1). The state of Ohio has a similar percentage population of children compared to the counties (approximately 24 percent). There are no on-installation housing or facilities for children located at the 121 ARW installation. Currently there are no schools exposed to DNL of 65 dB or above.



## **CHAPTER 4 ENVIRONMENTAL CONSEQUENCES**

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The resource analyses presented in this chapter are based on an examination of potential effects that the various alternatives, including the No Action Alternative may have on existing environmental conditions. The alternatives are described in Chapter 2, and the existing environmental conditions for each resource are described in Chapter 3. This chapter examines the potential environmental consequences for each of the resource areas in the same sequence as presented in Chapter 3. The sections that follow present an evaluation of potential impacts within the specific ROI as a result of implementation of each of the alternatives using the analytical methodology presented in Appendix A.

### **4.1 ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION**

#### **4.1.1 Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #1 are considered and compared with current conditions to assess potential impacts. Details of the methodologies used for this section can be found in Appendix A, Section A.1.2.

The DNL noise contours for Forbes ANGTS were generated using the NOISEMAP computer model and represent the most current noise data available for establishing baseline conditions and for which to analyze changes to the noise environment in the Forbes ANGTS ROI. DNL noise contours for the KC-46A under Alternative #1 were also generated using NOISEMAP through the removal of all KC-135 operations and the insertion of the proposed KC-46A operations using the substitute KC-46A noise data and flight profile data provided by Air Force Civil Engineer Center (AFCEC) and applying the data to the current KC-135 flight tracks and operational procedures.

##### **4.1.1.1 Aircraft Noise**

Under Alternative #1, 12 KC-46As would be based at Forbes ANGTS, replacing the current 12 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135. Aircrews associated with the KC-46A would continue

to practice closed patterns, including tactical procedures; however, most tactical procedures would be accomplished in the simulator and at other locations away from Forbes Field Airport.

Under Alternative #1, the 190 ARW would have an increase in flying hours generating an increase in annual airfield operations by 4,110 from 10,452 to 14,562 operations (a 39 percent increase). Aircraft operations per average busy flying day (arrivals and departures [3.64] and closed patterns [16.64]) would increase under Alternative #1 to 4.94 arrivals and departures and 23.1 closed patterns/day. The percentage of 190 ARW annual aircraft operations occurring during environmental night (10 p.m. to 7 a.m.) would remain at the same 15 percent as under baseline conditions. The total number of operations flown by all other aircraft at Forbes Field Airport would not change from previously identified airfield activities (Table 4.1.1-1). There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

**Table 4.1.1-1. Forbes Field Airport Annual Aircraft Operations with Proposed KC-46A**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	6,322	959	6,118	1,163	12,440	2,122	14,562
Other Aircraft <sup>3</sup>	6,848	241	6,848	241	13,696	482	14,178
<b>Total</b>	<b>13,170</b>	<b>1,200</b>	<b>12,966</b>	<b>1,404</b>	<b>26,136</b>	<b>2,604</b>	<b>28,740</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: L-1011, MD-80, Lear 35, and HH-60.

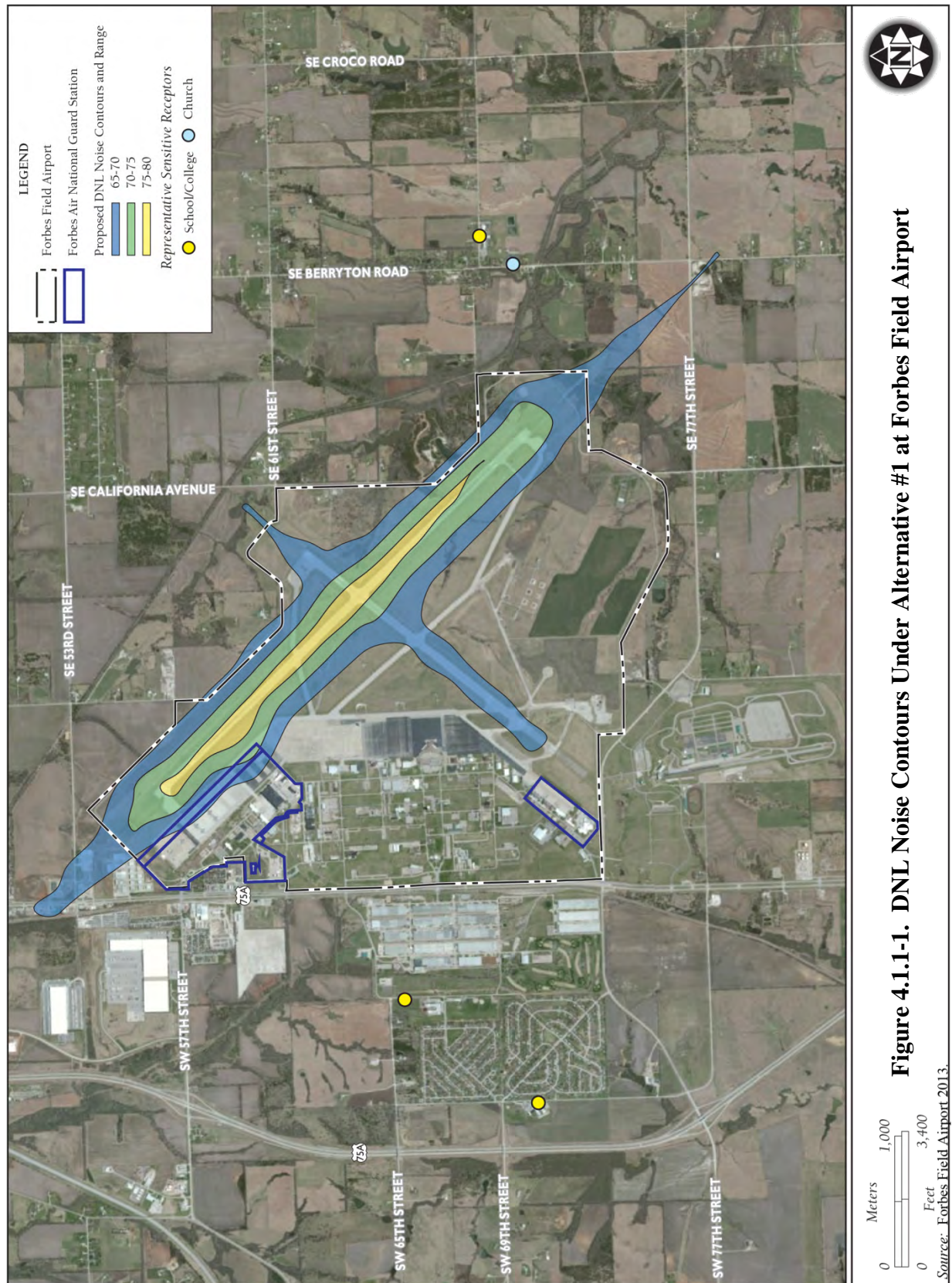
Source: FAA 2012a, Forbes ANG 2013.

Figure 4.1.1-1 depicts the noise exposure area from aircraft operations after the conversion from the current 12 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.1.1-2 compares baseline noise contours with Alternative #1 contours. The aircraft operations modeled include all transient aircraft, and general and commercial aircraft operations depicted in the most current Forbes Field Airport 2013 noise modeling update using 2012 data. Table 4.1.1-2 shows changes to the acreage of land within each noise contour under Alternative #1.

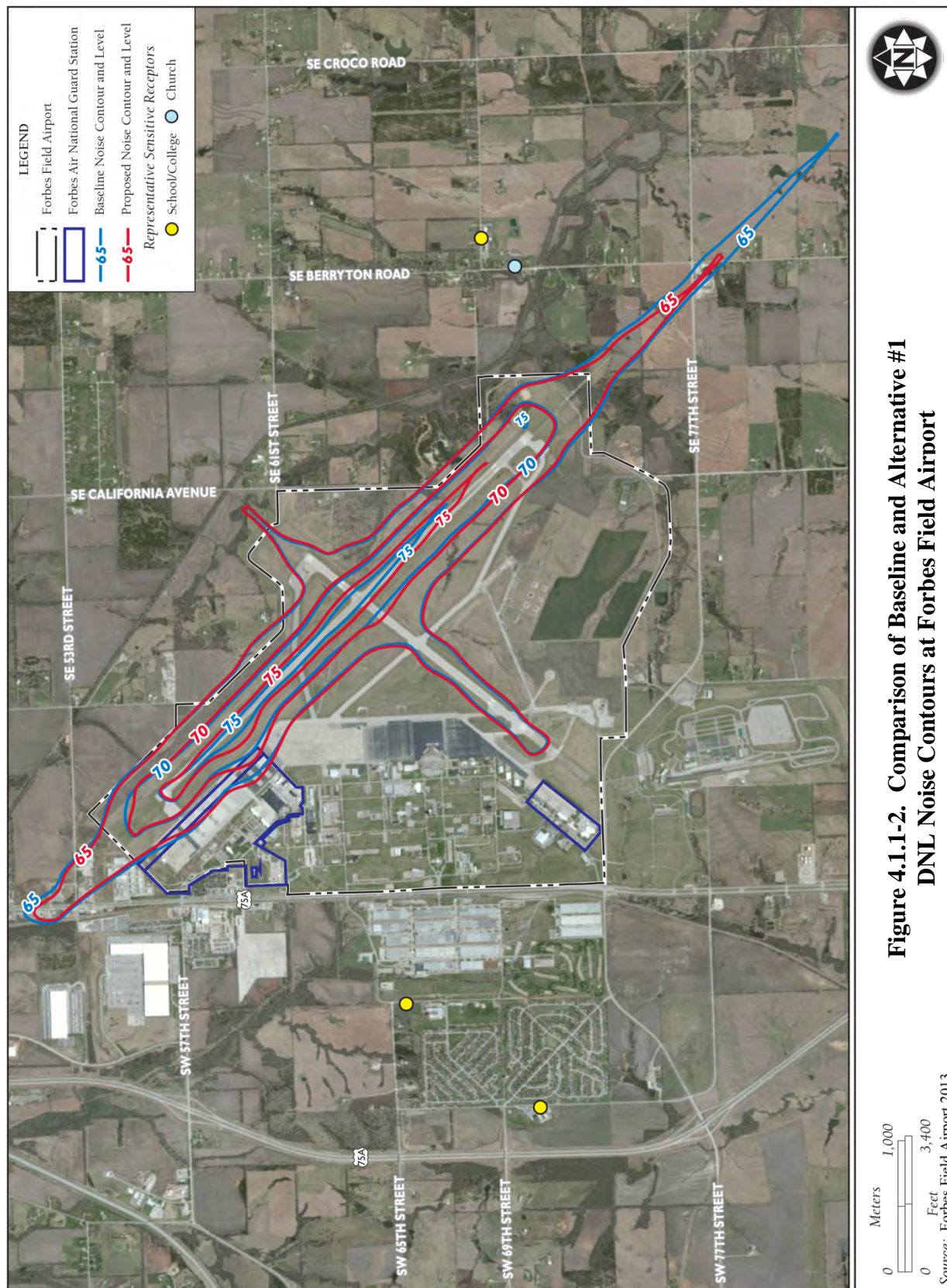
**Table 4.1.1-2. Land Areas within DNL Contours at Forbes Field Airport Affected by DNL Greater than 65 dB under Baseline and Alternative #1**

Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #1 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	448	165	613	430	111	541	-72
70-75	308	0	308	286	0	286	-22
75-80	50	0	50	103	0	103	53
80-85	0	0	0	0	0	0	0
>85	0	0	0	0	0	0	0
<b>Total</b>	<b>806</b>	<b>165</b>	<b>971</b>	<b>819</b>	<b>111</b>	<b>930</b>	<b>-41</b>

Notes: DNL = Day Night Average Sound Level; dB = decibel







While the operations increase under Alternative #1, the DNL noise contours would reduce slightly from the baseline DNL noise contours because the KC-46A is generally a quieter aircraft (5 dB quieter on landing and 1 dB louder on take-off) than the KC-135 and other aircraft such as the F-18 and E-3 contributing more to the DNL levels than the KC-46A. Overall, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 41 acres, or 4 percent, and would remain primarily on airport property with approximately 111 of the acres off the airport property. Information regarding the number of people residing in this area can be found in Section 4.1.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.1.7, *Land Use*.

#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #1 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above 65 dB DNL.

#### *Single Event Sound Analysis*

Under Alternative #1, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Section A.1.2, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #1, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with less than 15 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

Per the ANG mission, the KC-46A would be operated Monday through Friday for a total of approximately 260 operational days per year, mirroring the operational patterns of current KC-135 operations. Based on the average annual day, aircrews would fly 4.94 sorties (initial departure and initial arrival) and approximately 23.1 additional practice approaches (closed patterns) at the airfield. The KC-46A mission would add an additional 4,110 airfield operations per year at the airport with approximately 15 percent conducted between 10:00 p.m. and 7:00 a.m.

#### *Potential Hearing Loss*

As shown in Table 4.1.1-1, there is no property off the Forbes Field Airport that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.1.1.2 Construction Noise

There would be some minor noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (Federal Highway Administration [FHWA] 2006) (Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at Forbes Field Airport dominate the local noise environment for brief times on some days. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #1 would be negligible.

#### 4.1.1.3 Summary of Impacts

While the number of annual airfield operations would increase by 4,110 (39 percent increase in 190 ARW operations, 17 percent increase in total airfield operations), the acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres. There would be no potential for hearing loss off the airport and no increase in the percent population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

### 4.1.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 190 ARW of the KS ANG at Forbes Field Airport in Topeka, Kansas. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Forbes Field Airport were reviewed for significance relative to the Prevention of Significant Deterioration (PSD) threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Shawnee County attain all of the NAAQS, the PSD threshold of 250 tpy (100,000 tpy for greenhouse gases [GHGs]) was used as an indicator of the potential significance of the emissions from Alternative #1.

#### 4.1.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at Forbes Field Airport include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) off-site POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged.

Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.1.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Forbes Field Airport. Table 4.1.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Forbes Field Airport. As shown in Table 4.1.2-1, the net emissions increases are below the PSD thresholds for all pollutants.

**Table 4.1.2-1. Comparison of Baseline and Proposed Annual Operational Emissions, 190 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	3.63	54.09	99.23	8.48	0.45	0.45
AGE	0.01	0.02	0.02	0.00	0.00	0.00
Engine Tests	0.17	2.52	0.69	0.11	0.01	0.01
POVs	1.94	26.38	1.46	0.02	0.06	0.03
<b>Total</b>	<b>5.75</b>	<b>83.00</b>	<b>101.39</b>	<b>8.61</b>	<b>0.53</b>	<b>0.49</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	22.27	83.94	253.12	14.22	0.95	0.81
AGE	0.01	0.02	0.02	0.00	0.01	0.01
Engine Tests	1.27	4.33	1.17	0.14	0.01	0.01
POVs	1.59	23.99	1.11	0.02	0.06	0.03
<b>Total</b>	<b>25.14</b>	<b>112.28</b>	<b>255.42</b>	<b>14.38</b>	<b>1.04</b>	<b>0.86</b>
<b>Net Increase</b>	<b>19.40</b>	<b>29.28</b>	<b>154.03</b>	<b>5.77</b>	<b>0.51</b>	<b>0.37</b>
<b>MOB 2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>3.47</b>	<b>0.35</b>	<b>1.52</b>	<b>0.67</b>	<b>0.96</b>	<b>0.76</b>
<b>PSD Threshold</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration



In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Forbes Field Airport would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 tpy.

Table 4.1.2-2 summarizes the annual operational greenhouse gas (GHG) emissions that would result from KC-46A operations at Forbes Field Airport, along with the net increase in comparison with the baseline. As shown in Table 4.1.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.1.2-2. Comparison of Baseline and Proposed Annual Operational GHG Emissions, 190 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	23,347	0.65	0.73	23,585
AGE	2,421	0.07	0.08	2,446
Engine Tests	296	0.01	0.01	299
POVs	993	0.00	0.00	993
<b>Total</b>	<b>27,056</b>	<b>0.72</b>	<b>0.81</b>	<b>27,324</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	38,724	1.02	1.15	39,102
AGE	3,291	0.09	0.11	3,326
Engine Tests	384	0.01	0.01	388
POVs	1,015	0.00	0.00	1,015
<b>Total</b>	<b>43,413</b>	<b>1.13</b>	<b>1.27</b>	<b>43,831</b>
<b>Net Increase</b>	<b>16,359</b>	<b>0.41</b>	<b>0.46</b>	<b>16,507</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

*Notes:* Numbers may not add precisely due to rounding.

GHG = greenhouse gas; CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.1.2.2 Construction Emissions

The KC-46A beddown at Forbes Field Airport would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.1.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Forbes Field Airport. As shown in Table 4.1.2-3, emissions would be below the PSD thresholds for all pollutants. For construction emissions, the project option with the greatest potential to emit was used in the analysis (see Table 2.3-5).

**Table 4.1.2-3. Annual Construction Emissions Under Alternative #1**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 (Option 1) - Addition to Hangar 662	0.94	1.49	0.26	0.03	1.34	1.12	498.26
Project #2 (Option 2) - Addition to Building 665	1.52	2.42	0.43	0.05	2.45	1.88	808.91
Project #3 - Internal Renovations to Building 679	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 (Option 2) - Pave Apron/Hydrants and Airfield Hold Ramp	5.38	12.98	1.32	0.66	10.93	4.59	3,319.19
<b>Total Maximum Emissions</b>	<b>8.14</b>	<b>17.36</b>	<b>2.07</b>	<b>0.75</b>	<b>14.76</b>	<b>7.63</b>	<b>4,748.95</b>
<b>PSD Threshold</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>100,000</b>

*Note:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.1.2.3 Summary of Impacts

Forbes ANG is located in an attainment area for all criteria pollutants. While there would be increases in operational criteria pollutant emissions, they would be below the PSD threshold, and would not be significant. Operational GHG emissions would be within thresholds in the PSD tailoring. Impacts from construction emissions and operational HAP emissions would be negligible.

### 4.1.3 Safety

#### 4.1.3.1 Ground Safety

Existing facilities at Forbes Field Airport for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013c).

Providing new and renovated facilities for the 190 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 190 ARW.

Proposed renovation and infrastructure improvement projects related to Alternative #1 would not impact aircraft take-off and landings or penetrate any RPZs. New building construction is not proposed, only existing building renovation and minor additions; therefore, construction activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at Forbes Field Airport.

For example, the KC-46A would follow established local approach and departure patterns used. Therefore, flight activity and subsequent operations would not require changes to RPZs.

Planned construction at Forbes Field Airport comprises additions to existing buildings and internal modifications only; no new facilities are proposed. Therefore, none of the construction or demolition would be in conflict with the current QD arcs. Per Air Force Manual (AFMAN) 91-201, *Explosive Safety Standards*, there would be no public transportation route or inhabited building located within the proposed QD arcs. No explosives would be handled during construction or demolition activities. Therefore, no additional risk would be expected as a result of implementation of this alternative.

To support the aircraft beddown at Forbes ANG, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with Unified Facilities Criteria (UFC) 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.1.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (Aviation Safety Network [ASN] 2013).

Although no facilities are proposed that would affect navigable airspace, Forbes ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #1, there would be an increase of approximately 39 percent 190 ARW operations (17 percent in total airfield operations) at Forbes Field Airport airfield operations compared to existing conditions. Even after the proposed increase, however, the total airfield operations would remain fewer than many of the state's other commercial airfields, including Salina Regional Airport, Hutchinson Municipal Airport, Philip Billard Municipal (Topeka) Airport, and New Century (Olathe) AirCenter (FAA 2013). This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates, and with a new airframe and technological improvements, the KC-46A would be expected to have a similar safety record. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (190 ARW 2012b). In addition, KC-46A aircrews would be required to follow applicable procedures outlined in the 190 ARW BASH Plan (2012); adherence to this program has minimized bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flights and some types of training (e.g., multiple approaches, closed pattern work). Furthermore, special briefings are provided to pilots whenever the potential exists for greater bird/wildlife strike risks within the airspace; KC-46A pilots would also be subject to these procedures.

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Forbes Field Airport as a result of Alternative #1 are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will

have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.1.3.3 Summary of Impacts

There would be a 39 percent increase in actual 190 ARW airfield operations (17 percent increase in total airfield operations) at Forbes Field Airport with commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### 4.1.4 Soils and Water

##### 4.1.4.1 Soils

Under Alternative #1, new construction would consist of four separate projects resulting in up to 258,149 SF (5.9 acres) of new construction footprint and no new impervious surface. There are two construction scenarios for the aircraft conversion under consideration; only one of these options for each project would be implemented. The total construction footprint analyzed represents the largest possible footprint of each of the options (Table 2.3-5). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #1 would occur on Ladysmith silty clay loam (0 to 1 percent slopes). This soil type is rated by the NRCS Web Soil Survey as very limited for roads and small commercial building development due to high shrink swell potential, low strength, ponding, frost action, and depth to saturated zone (NRCS 2013). In addition, this soil is designated as Prime Farmland under the Farmland Protection Policy Act. However, there would be no new impervious surface as a result of Alternative #1 and construction would occur on previously paved ground. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative.

To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices as described in the 190 ARW SWPPP (190 ARW 2012a) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the state of Kansas to obtain coverage under the General Permit for Stormwater Runoff from Construction Activities (General Permit No. S-MCST-0312-1) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #1 would be minimal.

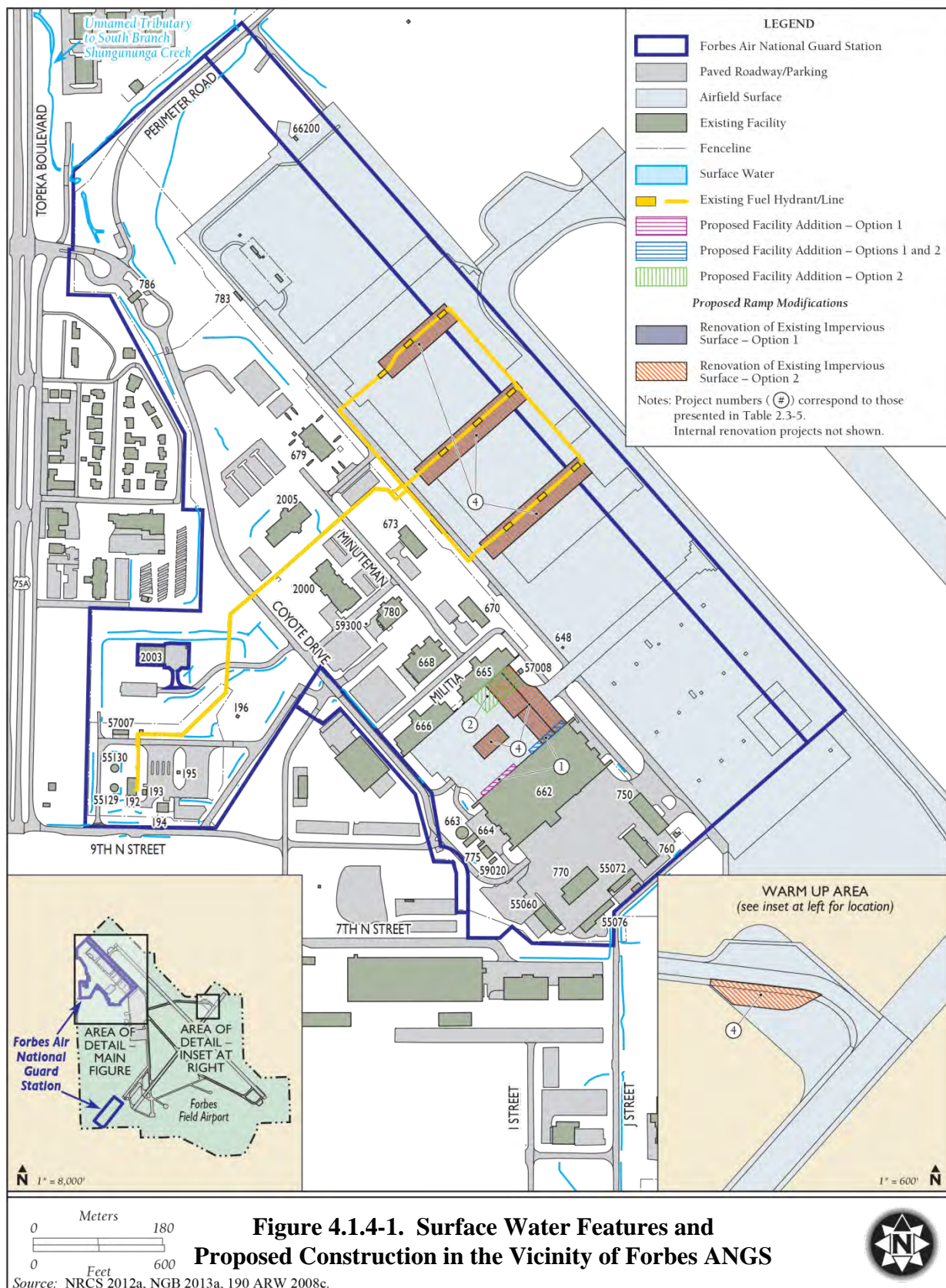
#### 4.1.4.2 Surface Water

As a result of implementation of Alternative #1, there would be up to 258,149 SF (5.9 acres) of temporary soil disturbance from the proposed facility construction; however, there would be no increase in impervious surface (Figure 4.1.4-1). In accordance with UFC 3-210-10, *Low Impact Development* (LID) (as amended, 2010) and *Energy and Independence Security Act* (EISA) Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. However, EISA does not apply in this instance since there would be no increase in impervious surface. Temporary soil disturbance could result in localized increases in total suspended particulates to nearby surface waters. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices as described above and in the 190 ARW SWPPP (190 ARW 2012a) would be implemented during and following the construction period. Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #1 would be minimal.

#### 4.1.4.3 Groundwater

As a result of Alternative #1, there would be no increase in the amount of impervious surface as a result of proposed construction. Therefore, impacts to groundwater would be negligible.







#### 4.1.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.1.4.5 Summary of Impacts

There would be approximately 5.9 acres of temporary soil disturbance and no new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### **4.1.5 Biological Resources**

#### 4.1.5.1 Vegetation

Construction of new facilities associated with Alternative #1 at the 190 ARW installation would occur on currently paved areas and would not result in an increase of impervious surfaces. Therefore, there would be no impacts to the vegetation at the installation.

#### 4.1.5.2 Wildlife

Under Alternative #1, impacts to wildlife due to construction would be minor. Noise and human activity associated with construction could evoke reactions to wildlife, including those that are protected under the MBTA, and may cause them to temporarily avoid the area. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. A study conducted by Strasser and Heath (2013) suggested that cavity nesting birds, such as kestrels, who inhabit noisy environments may compensate for decreased auditory cues by increasing vigilance behavior, leading to changes in energy allocation or extended periods away from the nest during incubation. This behavior appeared to be followed, at a high rate, by nest abandonment. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Under Alternative #1, impacts to wildlife due to proposed operations would be minor. Operational noise levels would be expected to decrease slightly from baseline with the

conversion to the KC-46A aircraft. Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #1, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the KC-46A at Forbes Field Airport would be projected to increase by approximately 39 percent over the KC-135 baseline operations (17 percent increase in total airfield operations). An increase in airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.1.3, *Safety*). The 190 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.1.5.3 Special Status Species

No special status species are currently known to occur on Forbes Field Airport and there is only a low potential for them to occur within the vicinity due to the lack of habitat. In addition, noise levels would be expected to decrease slightly from baseline with the conversion to the KC-46A aircraft. Therefore, under Alternative #1, there would be no effect to special status species. The USFWS Kansas Ecological Services Field Office stated in a letter sent on March 13, 2014 that they have no concerns regarding the Proposed Action.

#### 4.1.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #1.

#### 4.1.5.5 Summary of Impacts

There would be no impacts to vegetation and wetlands under this alternative. Impacts to wildlife species from operational noise would be imperceptibly beneficial due to the slight decrease in noise. A 39 percent increase in 190 ARW (17 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Impacts to wildlife due to construction would be negligible. No special status species or critical habitat is known to occur on Forbes Field Airport; therefore, there would be no impacts to these species.

#### **4.1.6 Cultural Resources**

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,242 to 1,436 would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

##### **4.1.6.1 Archaeological Resources**

Based on previous archaeological surveys that identified no archaeological resources, the installation is considered to have low to no potential of containing buried archaeological resources (KS ANG 2008). The Kansas SHPO has concurred with these findings (Zollner 2008, 2013). In the unlikely event that archaeological or human remains are identified during construction, the 190 ARW would immediately cease all activities in the area of the discovery and contact the 190 ARW Environmental Manager who would contact a qualified archaeologist to evaluate the discovery. Because there are no significant archaeological resources (prehistoric or historic) on the 190 ARW installation, the implementation of Alternative #1 would have no impact to archaeological resources.

##### **4.1.6.2 Architectural Resources**

Two of the buildings proposed for alteration (Hangars 662 and 665) are not eligible for listing in the NRHP (Zollner 2008). The third building (Building 679) is eligible for listing in the NRHP. However, Building 679 has been demolished and completely rebuilt. These actions were mitigated by a Memorandum of Agreement between the Kansas SHPO, Kansas ANG, and 190 ARW for a previous project (Air National Guard Readiness Center *et al.* 2009). The current proposed Alternative #1 would not affect the existing agreement. The interpretive display located in the entry corridor of the new building that was the major component of the Memorandum of Agreement would not be altered (KS ANG 2010). Therefore, the NGB has determined that there would be no effect to historic properties as a result of the Proposed Action. The Kansas SHPO concurs that no historic properties would be affected by the Proposed Action (see Zollner 2013 in Appendix B3). Therefore, the implementation of Alternative #1 would have no impact to architectural resources.

##### **4.1.6.3 Traditional Resources**

There are no known traditional resources on the 190 ARW installation. Given the extensive development on the installation, it is considered unlikely that there are traditional resources located at the 190 ARW. Government-to-government consultation for this action was conducted with each federally-recognized Tribe in recognition of their status as sovereign nations, and to

provide information regarding tribal concerns per Section 106 of the National Historic Preservation Act as well as information on traditional resources that may be present on or near the installation. Two responses from federally-recognized tribes have been received (the Kaw Nation and the Wichita and Affiliated Tribes). The Kaw Nation and the Wichita and Affiliated Tribes stated that they have no objection to the Proposed Action. Letters and written correspondence to Tribes were followed up with telephone calls and emails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Correspondence sent to the tribes and follow-up efforts are located in Appendix B2. Additional efforts were made to contact non-responsive tribes without success (see Appendix B2). While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Forbes ANG is now complete.

#### 4.1.6.4 Summary of Impacts

Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. Interior modifications to Building 679 would not affect the NRHP-eligibility of the building. Other architectural resources are not eligible for listing in the NRHP. The Kansas SHPO has concurred with the determination that no historic properties would be affected (Zollner 2013). No traditional resources are known to occur at the installation. Therefore, no impacts to cultural resources at the 190 ARW installation are anticipated under Alternative #1.

#### 4.1.7 Land Use

The primary source of impacts to land use resulting from Alternative #1 would be from noise. As shown in Table 4.1.7-1 and Figure 4.1.7-1, areas outside of the airport boundaries currently exposed to DNL of 65 dB to 70 dB would decrease by 55 acres, overall. By zoning districts, the PUD area affected by DNL of 65 dB to 70 dB would decrease by approximately 3 acres; Industrial areas would decrease by approximately 8 acres; and Residential Reserve areas would decrease by approximately 42 acres. No houses, churches, schools, or other known noise sensitive receptors would be located within the 65 dB DNL noise contour. Therefore, Alternative #1 is compatible with current land use and zoning designations and would result in minor beneficial impacts. A more detailed discussion of aircraft operations and noise can be found in Section 4.1.1, *Noise*.

**Table 4.1.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Forbes Field Airport Boundary**

<i>Land Use</i>	<i>Baseline Total (acres)</i>	<i>Proposed Total (acres)</i>	<i>Change Total (acres)</i>
Planned Unit Development	24.0	21.4	-2.6
Industrial	36.0	28.3	-7.7
Residential Reserve	97.4	55.4	-42.0
Non-designated	8.1	5.8	-2.3
<b>Total Area</b>	<b>165.5</b>	<b>110.9</b>	<b>-54.6</b>

#### 4.1.7.1 Summary of Impacts

While the number of total annual airfield operations would increase by 4,110 (17 percent), the acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres (55 acres off airport property). Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would be compatible with current land use and zoning designations and would result in imperceptibly beneficial impacts by reducing the off-airport areas currently exposed to noise levels between 65 dB and 70 dB DNL. Airport Hazard Areas would not be affected.



#### **4.1.8 Infrastructure and Transportation**

##### **4.1.8.1 Potable Water**

Water consumption would be expected to increase slightly under Alternative #1 as a result of the increase in personnel; however, an increase in 181 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

##### **4.1.8.2 Wastewater**

Wastewater generation would be expected to increase slightly as a result of the increase in 181 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

##### **4.1.8.3 Stormwater**

Under Alternative #1, there would be up to 258,149 SF (5.9 acres) of temporary soil disturbance and no new impervious surface as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.1.4, *Soils and Water*); however, through implementation of appropriate standard construction practices (as described previously), preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

##### **4.1.8.4 Electrical and Natural Gas Systems**

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with Alternative #1 would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.



Construction activity associated with Alternative #1 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.1.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 258,149 SF of additions and alterations to existing facilities. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Forbes ANGTS would generate 3,043,577 pounds (1,522 tons) of renovation debris requiring landfill disposal (USEPA 2009).

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Rolling Meadows Landfill has a remaining life expectancy of 15 years and a permitted throughput of 321,000 tons per year (Rolling Meadows Waste Management 2009). The 1,522 tons of proposed construction debris generated at Forbes ANGTS would represent approximately 0.5 percent of the yearly capacity of the landfill. In addition, Shawnee County has a remaining municipal solid waste capacity of 20-40 years (Kansas Department of Health and Environment 2010). Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 190 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.1.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 181 under Alternative #1 (see Table 2.3-6). The increase in personnel would create a potential 181 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #1 would add an additional 362 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #1.

#### 4.1.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### 4.1.9 Hazardous Materials and Waste

#### 4.1.9.1 Hazardous Materials

A Hazardous Materials Management Program has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ozone depleting substances (ODSs). ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #1.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #1, the total number of annual flying hours for the 190 ARW would increase from 4,868 to 8,040 (a 65 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.1, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 190 ARW installation would continue to be followed in future operations associated with Alternative #1 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #1, additions to Hangars 662 and 665 are proposed, and internal renovations to Building 679 are proposed. ACM is known to occur in Hangar 665 and Building 679. An LBP survey has not been conducted at the 190 ARW installation. However, Hangar 662 and 665, and Building 669 were constructed prior to 1978 and therefore may contain LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with the Toxic Substances Control Act (TSCA), Occupational Safety and Health Administration (OSHA) regulations, Kansas requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.1.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft, with the exception of ODSs. Additionally, the two aircraft require the same types of hazardous materials for their

maintenance and operations (e.g., fuels, oils). Under Alternative #1, the total number of flying hours for the 190 ARW would increase approximately 65 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). However, the increase in hazardous waste streams is supportable by the current infrastructure at the installation. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.1.9.3 Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish Resource Conservation and Recovery Act (RCRA) facility assessments, or preliminary assessments and site inspections undertaken in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other military construction (MILCON) funds reprogrammed to a MILCON construction project. Construction

contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

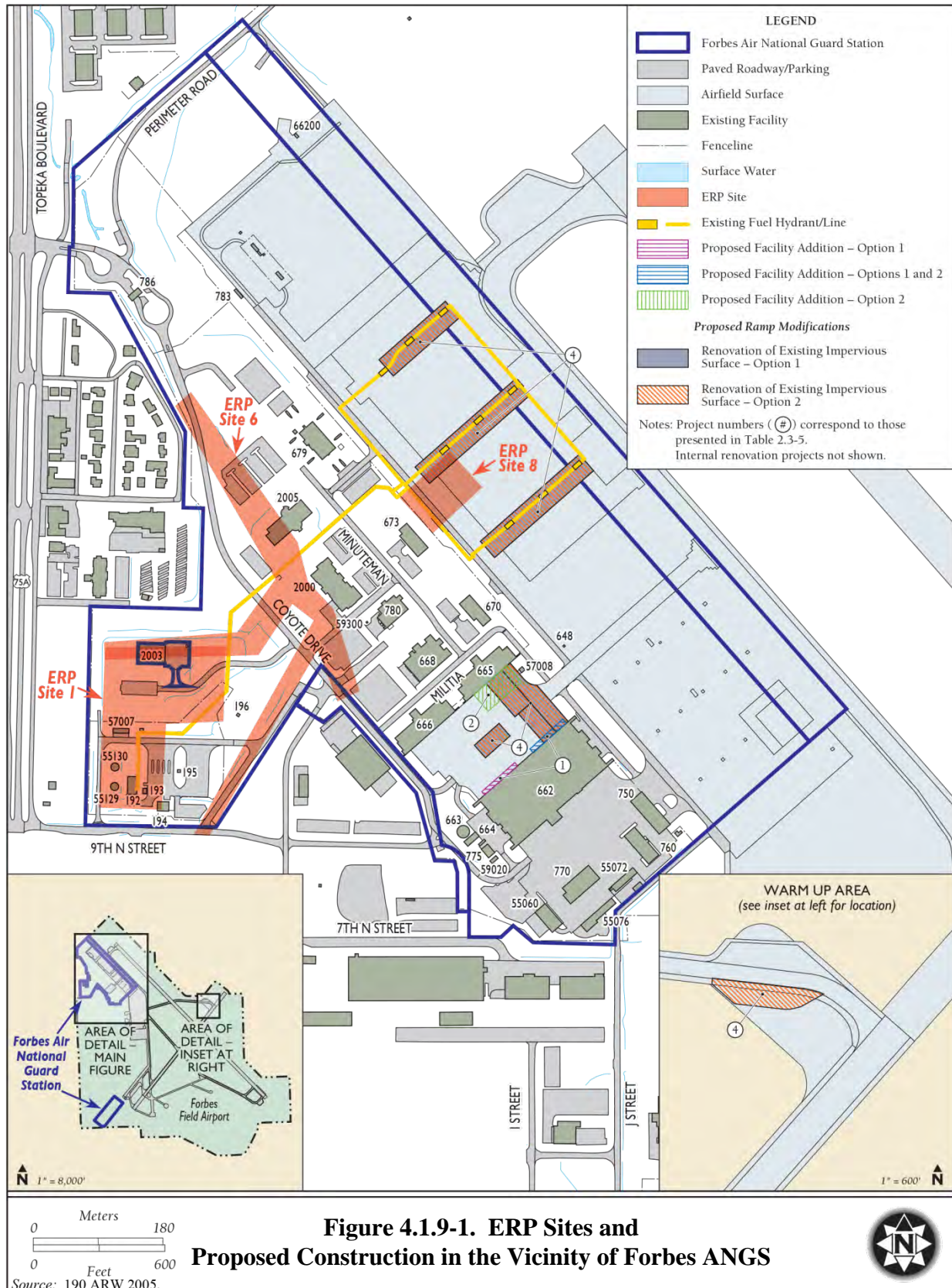
Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One site, ERP Site 8, overlaps with a portion of the proposed renovation of the existing pervious surfaces on the parking apron (Figure 4.1.9-1). This site is closed and monitoring conducted during 1990-1993 was completed with no contaminants reported above detection limits; therefore, it is not expected to pose a vapor intrusion concern. However, it is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.

If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

#### 4.1.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.



#### 4.1.10 Socioeconomics

Under Alternative #1, construction activities would be contained entirely within the boundaries of Forbes Field Airport. Economic activity associated with proposed construction activities at the 190 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a change in staffing requirements for the 190 ARW. Currently, the 190 ARW is authorized 1,242 personnel. Under Alternative #1, the KC-46A mission would add an additional 194 military positions (increase in 212 full-time positions and reduction of 18 traditional Guard positions) (see Table 2.3-6). Combined with their approximately 264 family members, this would represent less than 0.1 percent of Shawnee County population. Of the 264 family members, approximately 114 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Shawnee County. It is anticipated that there is enough capacity within the schools in Shawnee County to absorb this minimal increase in school age children.

An increase in 194 military personnel positions would amount to an increase of approximately 16 percent to the existing 190 ARW personnel. Total payroll associated with the 212 additional full-time personnel would amount to an estimated annual salary increase of approximately \$16 million for full-time employees.

All 190 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 194 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.2 percent of the total housing units in Shawnee County. However, not all the military personnel who would relocate would own homes.

##### 4.1.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.



#### **4.1.11 Environmental Justice and the Protection of Children**

##### **4.1.11.1 Minority and Low-Income Populations**

Under Alternative #1, there would be no residential populations, including no minority or low-income populations, located within the vicinity of Forbes Field Airport exposed to 65 dB DNL or above. Therefore, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Forbes Field Airport.

##### **4.1.11.2 Protection of Children**

There are no facilities on the installation where children may be encountered on a regular basis. Currently there are no off-installation Kindergarten through Grade 12 schools that are exposed to 65 dB DNL or above. Under Alternative #1 there would be no new Kindergarten through Grade 12 schools exposed to 65 dB DNL or above. Therefore, under Alternative #1 there would be no special health or safety risks to children.

##### **4.1.11.3 Summary of Impacts**

Given that the acreage within the 65 dB DNL noise contour would be reduced, there would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Forbes Field Airport exposed to 65 dB DNL or above; thus, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Forbes Field Airport. In addition, there would be no special health or safety risks to children.

## **4.2 ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST**

### **4.2.1 Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #2 are considered and compared with baseline conditions to assess potential impacts. Details of the methodologies used for this section can be found in Appendix A, Section A.1.2.

The DNL noise contours for this alternative were generated using the NOISEMAP computer model and represent the most current noise data available for establishing baseline conditions and for which to analyze changes to the noise environment in the McGuire Field ROI. The DNL noise contours for the KC-46A under Alternative #2 were also generated using NOISEMAP through the removal of all KC-135 operations and the insertion of the proposed KC-46A operations using the substitute KC-46A noise data and flight profile data provided by AFCEC and applying the data to the current KC-135 flight tracks and operational procedures.

#### **4.2.1.1 Aircraft Noise**

Under Alternative #2, 12 KC-46As would be based at JB MDL, replacing the current 8 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures; however, most tactical procedures would be accomplished in the simulator or at other locations away from JB MDL. The percentage of aircraft operations occurring during the night (10 p.m. to 7 a.m.) would decrease from that in the baseline conditions. Under Alternative #2, JB MDL would have an increase in flying hours generating an increase in KC-46A airfield operations.

Following the aircraft beddown under Alternative #2, the 108 WG would have an increase in total flying hours resulting in 1,508 sorties being flown at McGuire Field. This would be an increase of 81 percent over the baseline 834 sorties identified in the McGuire Field Noise Study (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at McGuire Field under this alternative) (JB MDL 2013a). Based on 1,508 annual home-station sorties and an average of 11.68 operations per sortie, there would be 17,608 annual home-station operations, or an additional 9,268 airfield operations annually at McGuire

Field (an increase of 111 percent for the 108 WG, and 15 percent increase in total JB MDL annual operations) (Table 4.2.1-1). This would increase the average daily airfield operations from 23 to 48. The 108 WG KC-46A operations would be approximately 24 percent of all aircraft operations at the airfield.

All operations would remain as described under existing conditions (with the exception of a decrease in published night operations [JB MDL 2013a]); however, the KC-135 would be replaced by the KC-46A. There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed as documented in Section 3.2.1.4.

**Table 4.2.1-1. McGuire Field Annual Aircraft Operations with Proposed KC-46A**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	8,047	764	7,863	934	15,910	1,698	17,608
Other Aircraft <sup>3</sup>	18,803	8,316	15,855	11,293	34,658	19,609	54,267
<b>Total</b>	<b>26,850</b>	<b>9,080</b>	<b>23,718</b>	<b>12,227</b>	<b>50,568</b>	<b>21,307</b>	<b>71,875</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other Based aircraft and Transient Aircraft (multiple type aircraft) including: KC-10, C-17, and C-32.

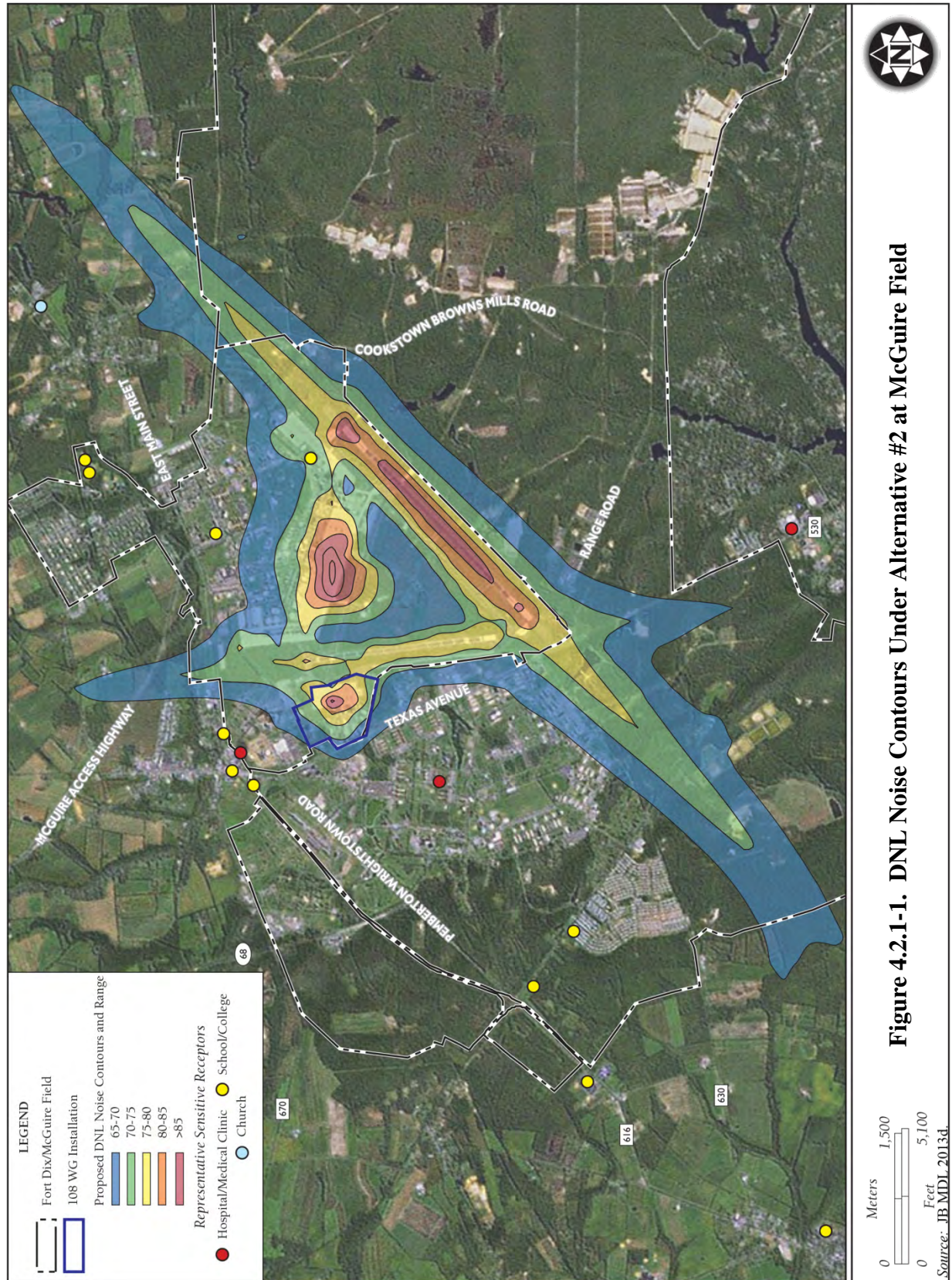
KC-135 aircraft operations per average annual day (arrivals and departures [2.28] and closed patterns [9.14]) would increase with the KC-46A to 11.6 arrivals and departures and 12.5 closed patterns/day. There would be approximately 10 percent of the KC-46A airfield operations flown during environmental night. The total number of operations flown by all other aircraft at JB MDL would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

Figure 4.2.1-1 depicts the noise exposure area from aircraft operations after the conversion from the current 8 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.2.1-2 compares baseline noise contours with Alternative #2 contours. The aircraft operations modeled include all current based and transient aircraft operations depicted in the 2012 JB MDL noise update. Table 4.2.1-2 shows changes to the acreage of land within each noise contour under Alternative #2.

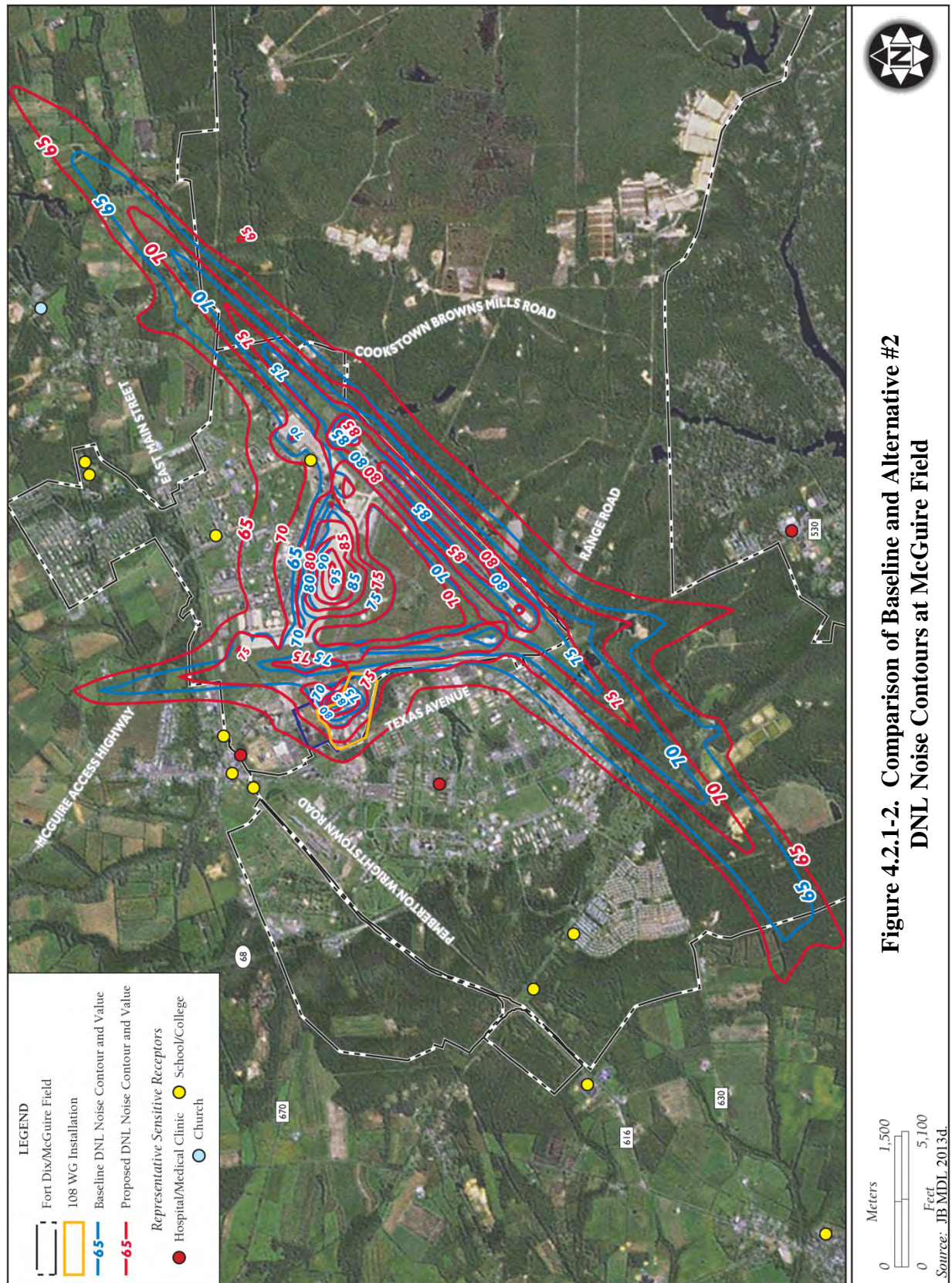
**Table 4.2.1-2. Land Areas within DNL Contours at JB MDL Affected by DNL Greater than 65 dB under Baseline and Alternative #2**

Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #2 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Base	Off Base	Total	On Base	Off Base	Total	
65-70	1,375	311	1,686	1,943	661	2,604	918
70-75	1,186	21	1,207	1,636	90	1,726	519
75-80	370	0	370	655	0	655	285
80-85	222	0	222	253	0	253	31
>85	76	0	76	154	0	154	78
<b>Total</b>	<b>3,229</b>	<b>332</b>	<b>3,561</b>	<b>4,641</b>	<b>751</b>	<b>5,392</b>	<b>1,831</b>

Notes: DNL = Day Night Average Sound Level; dB = decibel







Under Alternative #2, the DNL noise contours would expand slightly in all directions from the baseline DNL noise contours. Overall, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 1,831 acres, or 51 percent, but would remain primarily on McGuire Field with approximately 751 of these acres off the base property (an increase of 419 acres off base). Information regarding number of people residing in this area can be found in Section 4.2.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.2.7, *Land Use*.

#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #2 would increase slightly from baseline conditions because there would be an expected 48 additional individuals living in residences exposed to levels above a DNL of 65 dB.

#### *Single Event Sound Analysis*

Under Alternative #2, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1-1 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #2, flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with less than 10 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

#### *Potential Hearing Loss*

As shown in Table 4.2.1-2, there is no property off the JB MDL that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas. In addition, the on-base housing area lies outside of the 65 dB DNL contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.2.1.2 Construction Noise

There would be some minor temporary noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006) (see Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at JB MDL dominate the local noise environment. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield and would be only temporary. Therefore, impacts from construction under Alternative #2 would be negligible.

#### 4.2.1.3 Summary of Impacts

The number of annual airfield operations would increase by 9,268 (111 percent increase in 108 WG operations, 15 percent increase in total airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres. Of this increase in acreage, 419 acres would be off DoD-controlled property. There would be no potential for hearing loss off the airport and only a slight increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### 4.2.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 108 WG installation. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at JB MDL were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Burlington and Ocean counties are part of the Philadelphia-Wilmington-Atlantic City nonattainment area for O<sub>3</sub> (marginal nonattainment), and is a maintenance area for PM<sub>2.5</sub> and CO, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, PM<sub>2.5</sub>, and CO was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants PM<sub>10</sub> and SO<sub>2</sub>, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #2.

##### 4.2.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at the 108 WG installation include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including non-road mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.



Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on total personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.2.2-1 summarizes the annual operational emissions that would result from KC-46A operations at 108 WG installation. Table 4.2.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at JB MDL. As shown in Table 4.2.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants except NO<sub>x</sub>. Emissions of NO<sub>x</sub> would exceed the *de minimis* threshold, and this alternative would therefore require a Conformity Determination under the General Conformity Rule (Appendix F).

The ANG has prepared a Draft Conformity Determination that demonstrates that emissions associated with Alternative #2 would be within the SIP NO<sub>x</sub> emissions budget for McGuire AFB (now JB MDL), should this alternative be selected. The ANG is coordinating with the NJDEP regarding the 2011 SIP emissions budget and the proposed increase in NO<sub>x</sub> emissions associated with Alternative #2 to ensure that the 2011 budget is still effective. If Alternative #2 is selected, it is anticipated that the ANG will obtain an affirmative General Conformity Determination prior to signing of the ROD.

**Table 4.2.2-1. Comparison of Baseline and Proposed Annual Operational Emissions, 108 WG Installation**

Baseline	ANNUAL EMISSIONS, TONS/YEAR					
	VOC	CO	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
KC-135 Aircraft Operations	3.21	49.03	83.34	7.43	0.39	0.39
AGE	0.01	0.01	0.09	0.00	0.00	0.00
Engine Tests	0.14	2.01	0.55	0.09	0.01	0.01
POVs	5.12	110.72	5.20	0.07	0.21	0.12
<b>Total</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>7.59</b>	<b>0.61</b>	<b>0.53</b>
<b>Proposed Action</b>	<b>VOC</b>	<b>CO</b>	<b>NO<sub>x</sub></b>	<b>SO<sub>2</sub></b>	<b>PM<sub>10</sub></b>	<b>PM<sub>2.5</sub></b>
KC-46A Aircraft Operations	26.19	100.37	294.03	17.32	1.13	0.96
AGE	0.01	0.02	0.17	0.00	0.01	0.01
Engine Tests	1.53	5.23	1.38	0.17	0.02	0.01
POVs	4.75	126.34	3.97	0.09	0.22	0.12
<b>Total</b>	<b>32.48</b>	<b>231.97</b>	<b>299.54</b>	<b>17.58</b>	<b>1.38</b>	<b>1.11</b>
<b>Net Increase</b>	<b>24.01</b>	<b>70.19</b>	<b>210.36</b>	<b>9.99</b>	<b>0.77</b>	<b>0.58</b>
<b>MOB 2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>2.83</b>	<b>0.43</b>	<b>2.36</b>	<b>1.32</b>	<b>1.26</b>	<b>1.09</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft under Alternative #2 would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 ton per year.

Table 4.2.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at JB MDL, along with the net increase in comparison with the baseline. As shown in Table 4.2.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.2.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 108 WG**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	20,450	0.57	0.64	20,659
AGE	2,134	0.06	0.07	2,157
Engine Tests	237	0.01	0.01	239
POVs	3,543	0.00	0.00	3,543
<b>Total</b>	<b>26,363</b>	<b>0.63</b>	<b>0.71</b>	<b>26,597</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	47,195	1.25	1.41	47,657
AGE	3,859	0.11	0.12	3,900
Engine Tests	459	0.01	0.01	464
POVs	4,359	0.00	0.00	4,359
<b>Total</b>	<b>55,872</b>	<b>1.37</b>	<b>1.54</b>	<b>56,379</b>
<b>Net Increase</b>	<b>29,509</b>	<b>0.74</b>	<b>0.83</b>	<b>29,782</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.2.2.2 Construction Emissions

The KC-46A beddown at JB MDL would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.2.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at JB MDL. As shown in Table 4.2.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants.

For construction emissions the project option with the greatest potential to emit was used in the analysis (see Table 2.3-11).

**Table 4.2.2-3. Annual Construction Emissions Under Alternative #2**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 - Addition to Hangar 3333	1.43	2.28	0.40	0.04	2.27	1.77	762.34
Project #2 - Addition to Hangar 3336	1.46	2.32	0.41	0.04	2.32	1.80	775.72
Project #3 - Internal Renovations to Hangar 3322	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 - New Simulator Building	0.54	0.85	0.15	0.02	0.71	0.63	285.47
Project #5 - Modifications to Existing Parking Ramp and Taxiway	4.28	10.18	1.06	0.51	6.15	3.00	2,529.83
Project #6 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.01	0.01	0.00	0.00	0.00	0.00	3.88
<b>Total Option 1</b>	<b>8.01</b>	<b>16.11</b>	<b>2.08</b>	<b>0.62</b>	<b>11.48</b>	<b>7.23</b>	<b>4,479.82</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.2.2.3 Summary of Impacts

The 108 WG installation is in a nonattainment area for O<sub>3</sub> (marginal nonattainment), and maintenance area for CO and PM<sub>2.5</sub>, and is therefore subject to *de minimis* thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO<sub>x</sub>, which would be above the *de minimis* threshold of 100 tpy. A conformity determination must be prepared. Operational GHG emissions are within thresholds in the PSD tailoring rule. Impacts from construction emissions and operational HAP emissions are negligible.

The ANG has prepared a Draft Conformity Determination that demonstrates that emissions associated with Alternative #2 would be within the 2011 SIP NO<sub>x</sub> emissions budget for McGuire AFB (JB MDL), should this alternative be selected. The ANG is coordinating with the NJDEP regarding the 2011 SIP emissions budget and the proposed increase in NO<sub>x</sub> emissions associated with Alternative #2 to ensure that the 2011 budget is still effective. If Alternative #2 is selected, it is anticipated that the ANG will obtain an affirmative General Conformity Determination prior to signing of the ROD.

#### 4.2.3 Safety

##### 4.2.3.1 Ground Safety

Existing facilities at McGuire Field for fire response and crash recovery meet KC-46A beddown requirements (JB MDL 2013b).

Proposed renovation and infrastructure improvement projects related to this alternative would not penetrate any APZs or impact aircraft take-off or landings (JB MDL 2013b). New construction and building renovation activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at JB MDL. For example, the KC-46A would follow established local approach and departure patterns. Therefore, flight activity and subsequent operations would not require changes to APZs. Planned construction at JB MDL would be sited to be in compliance with the current QD arcs and no unauthorized construction would occur within the proposed QD arcs. None of the construction or demolition would be in conflict with the QD arcs. Per AFMAN 91-201, *Explosive Safety Standards*, there would be no public transportation route or inhabited building located within the proposed QD arcs. No explosives would be handled during construction or demolition activities. Therefore, no additional risk would be expected as a result of implementation of this alternative.

To support the aircraft beddown at JB MDL, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.2.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, JB MDL would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #2, there would be an increase of approximately 111 percent 108 WG operations (15 percent in total JB MDL airfield operations) for the Proposed Action compared to existing conditions. This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates, and with a new airframe and technological improvements the KC-46A would be expected to have a similar safety record. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (JB MDL 2010).

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of JB MDL as a result of Alternative #2 are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly

inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.2.3.3 Summary of Impacts

There would be a 111 percent increase in actual 108 WG airfield operations (15 percent in total airfield operations) at JB MDL with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

### 4.2.4 Soils and Water

#### 4.2.4.1 Soils

Under Alternative #2, new construction would consist of six separate projects resulting in up to 204,009 SF (4.7 acres) of new construction footprint and up to 104,884 SF (2.4 acres) of new impervious surface. There are two construction scenarios for the aircraft conversion under consideration; only one of these options would be implemented. The total construction footprint analyzed represents the largest possible footprint of each of the options (Table 2.3-11). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #2 would occur primarily on Adelphia-Urban land complex (0 to 5 percent slopes), with a small amount (approximately 0.5 acre) of the new construction footprint on Sassafras sandy loam and Udorthents. Adelphia-Urban land complex is rated by the NRCS Web Soil Survey as somewhat limited for small commercial building development due to shrink-swell potential and depth to saturated zone and very limited for roadway development due to frost action and depth to saturated zone (NRCS 2013). In addition, Sassafras sandy loam (*2 to 5 percent slopes*) is designated as Prime Farmland under the Farmland Protection Policy Act; however, only 3 percent of the proposed construction footprint would occur on this soil type. The proposed construction is for national defense purposes and the surrounding land is already in urban development. Pursuant to the Farmland Protection Policy Act, the USAF determined that the land is not farmland subject to the Farmland Protection Policy Act; therefore, the Farmland Protection Policy Act does not apply to this alternative.

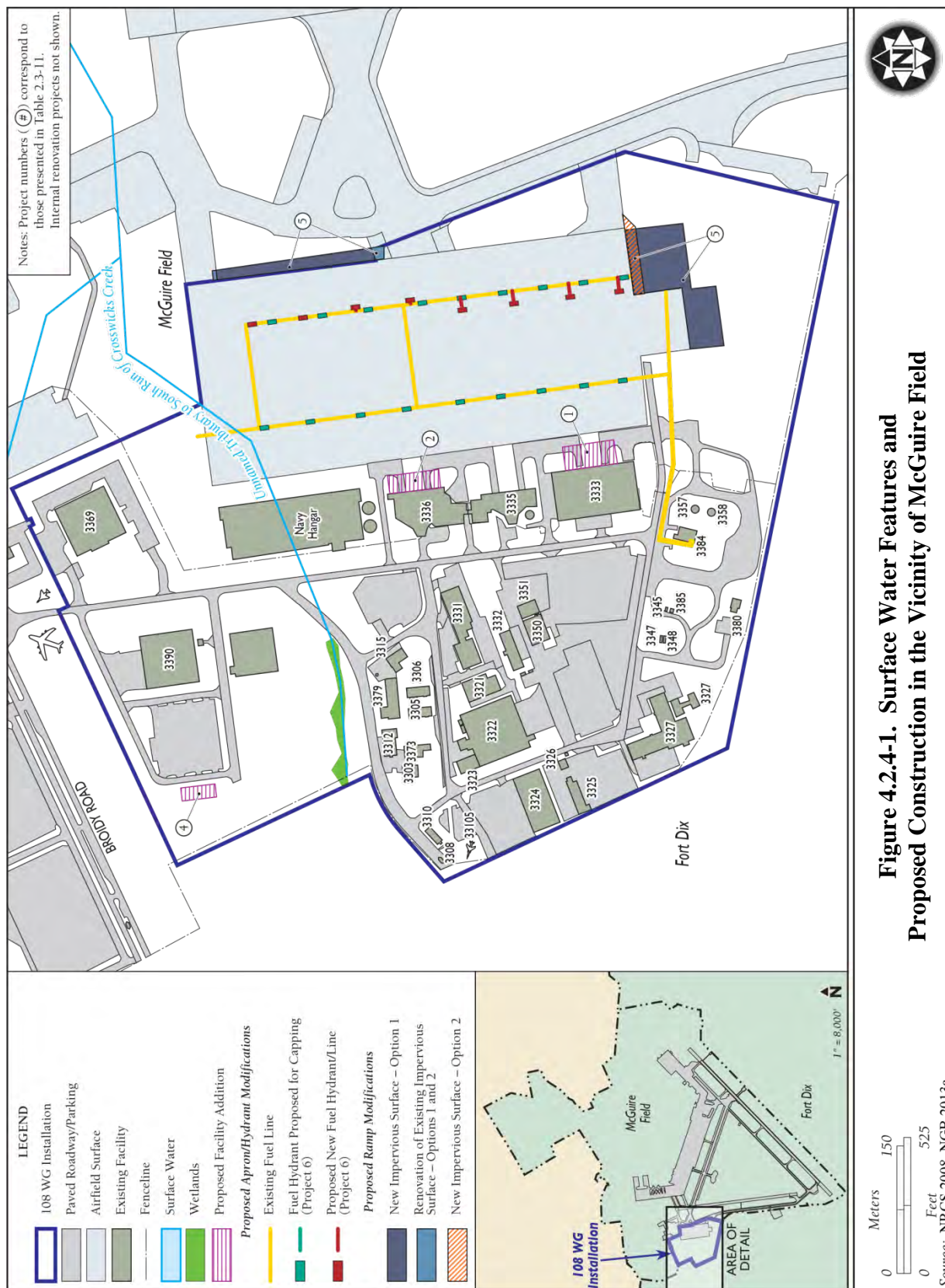


To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices as described in the 108 WG SWPPP (USAF School of Aerospace Medicine 2010) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. The contractor would also submit a Burlington County Erosion and Sediment Control Plan and receive certification of the plan prior to commencing site work. An NOI must be filed with the state of New Jersey to obtain coverage under the Construction Activity Stormwater General Permit (General Permit No. NJ0088323) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #2 would be minimal.

#### 4.2.4.2 Surface Water

As a result of implementation of Alternative #2, there would be a maximum of 104,884 SF (2.4 acres) of new impervious surface from the proposed construction (Figure 4.2.4-1). This could result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:



- water harvesting and natural open space,
- installation of detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #2 would be minimal.

#### 4.2.4.3 Groundwater

As a result of Alternative #2, the increase in the amount of impervious surface (2.4 acres) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices as described above. The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.2.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.2.4.5 Summary of Impacts

There would be approximately 4.7 acres of temporary soil disturbance and 2.4 acres of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

## **4.2.5 Biological Resources**

### **4.2.5.1 Vegetation**

Construction of new facilities associated with Alternative #2 at the 108 WG installation would primarily occur on currently paved areas or actively managed (i.e., mowed and landscaped) areas. In addition, approximately 0.15 acre (6,700 SF) of forest on the 108 WG installation (< 0.001 percent of the total forested area on JB MDL) would be removed in order to build the new simulator. However, this forested area is a small isolated fragmented parcel, and provides limited quality wildlife habitat. Alternative #2 would result in an increase of 104,884 SF (2.4 acres) of impervious surfaces. Impacts to the vegetation at the installation would be minor due to the lack of sensitive vegetation in the project area.

### **4.2.5.2 Wildlife**

Under Alternative #2, minor impacts to wildlife would occur as a result of construction. Noise and human activity associated with construction could evoke reactions to wildlife, including those that are protected under the MBTA, and may cause them to temporarily avoid the area. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the 108 WG installation where project components would occur are accustomed to human activity and elevated noise associated with aircraft and general military industrial use. In addition, to the extent possible, construction would not occur during the breeding season for grassland birds (April 15 to July 31). As a result, indirect impacts from construction are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications. Additionally, any tree clearing would be performed outside the migratory bird breeding season (March 15 to July 31) to avoid any impacts to migratory birds.

Under Alternative #2, impacts to wildlife due to proposed operations would be minor. DNL noise contours would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft; however, these noise levels would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with existing aircraft and military operations. Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #2, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the 108 WG would be projected to increase by approximately 111 percent over the KC-135 baseline operations (15 percent increase in total airfield operations). An increase in airfield operations would increase the potential for bird/wildlife aircraft strikes to occur. The 108 WG has developed procedures designed to

minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. Adherence to the existing, effective BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.2.3, *Safety*). When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.2.5.3 Special Status Species

No federally listed species are currently known to occur on the 108 WG installation and there is only a low potential for them to occur within the vicinity due to the lack of habitat. Six state listed species have been observed on McGuire Field. Grassland habitat located within the potential ramp expansion area could provide habitat for these species. However, to the extent possible, construction would not occur during the breeding season for grassland birds (March 15 to July 31). Operational noise levels under Alternative #2 would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft. Under Alternative #2, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #2, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.). An additional 419 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. However, since ambient noise levels within the vicinity are relatively high under existing conditions, the Proposed Action under Alternative #2 would be unlikely to substantially increase enough to preclude wildlife from utilizing the area as they currently do. Therefore, there would be no effect to federally listed species and impacts to state listed species would be minor under Alternative #2. The USFWS New Jersey Field Office sent an e-mail on September 27, 2013 stating that they have no objection to the Proposed Action.

#### 4.2.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #2.

#### 4.2.5.5 Summary of Impacts

Impacts to vegetation under this alternative would be minor due to the lack of sensitive vegetation in the project area. There would be no impacts to wetlands. Impacts to wildlife from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction. A 111 percent increase in 108 WG (15 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No federally listed species or critical habitat is known to occur on McGuire Field; therefore, there would be no impacts to federally listed species. Six state listed species have been observed on McGuire Field. Impacts to state listed species would be minor.

#### 4.2.6 Cultural Resources

Potential impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts that would come from an increase in personnel from 1,329 to 1,616 necessary for the KC-46A beddown would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

##### 4.2.6.1 Archaeological Resources

The area of McGuire Field was occupied during the late eighteenth through early twentieth century by rural homesteads outlying the nearby towns such as Pointville and Wrightstown. Both Texas Avenue and McGuire Road lie on the alignment of historic roads known to have been used as through routes during the nineteenth century. However, military development of Camp Dix Army Airfield in the early twentieth century, as well as Rudd Field and McGuire Air Force Base during the mid to late twentieth century, led to large scale disturbance of previously occupied historic landscapes. Nonetheless, there are pockets of historic archaeological resources extant within the installation boundaries including the three NRHP eligible sites mentioned in Section 3.2.6. None of these sites are within the area of potential disturbance for Alternative #2. A small amount of construction (0.15 acre) for a new simulator building off of Broidy Road would occur in a stand of trees near this developed area. This area was the location of barracks in the 1940s and 1950s and likely has some buried foundations dating to that period. However, those barracks remains are not considered eligible to the NRHP (Duryee 2013). Therefore, based on previous archaeological surveys at McGuire Field and the historic land use patterns of the installation, the area of proposed construction does not contain any known NRHP-eligible sites and this area is considered to have a low potential for containing buried archaeological materials (87<sup>th</sup> Civil Engineering Squadron 2013). In the unlikely event that archaeological or human



remains are identified during construction, all activities in the area of the discovery would cease and the JB MDL Cultural Resources Manager would be immediately contacted for further instruction. Because the 108 WG installation has been inventoried for archaeological resources and no such resources were encountered within the area of disturbance of Alternative #2, there would be no impacts to archaeological resources (prehistoric or historic) under Alternative #2. The New Jersey SHPO has concurred that there would be no historic properties affected under Alternative #2 (Saunders 2013).

#### 4.2.6.2 Architectural Resources

Alternative #2 would include additions to Hangars 3333 and 3336 and interior renovations to Hangar 3322. Hangars 3333 and 3336 were built in the late 1990s and are not historic; therefore, they are not eligible to the NRHP as they are not yet 50 years old and they do not meet criterion G for exceptional significance under the Cold War or any other event. Hangar 3322, built in 1957, was evaluated for NRHP eligibility in 2013 and determined not eligible for listing in the NRHP (JB MDL 2013d). The New Jersey SHPO concurred that there would be no historic properties affected under the proposed action and that Section 106 consultation was complete (see Saunders 2013 in Appendix B3). Therefore, based on current information, there would be no adverse impact to Hangars 3333, 3336, and 3322 under Alternative #2.

#### 4.2.6.3 Traditional Resources

The 108 WG installation contains no known traditional resources. Given the extensive development on much of the installation, it is considered unlikely that there are traditional resources located at the 108 WG. Government-to-government consultation for this action has been conducted with the Delaware Nation and the Delaware Tribe of Indians in recognition of their status as sovereign nations. This consultation also provides information regarding tribal concerns per Section 106 of the NRHP and information on traditional resources that may be present on or near the installation. The Delaware Tribe of Indians sent a response on October 4, 2013 stating that their review indicated no religious or culturally significant sites in the area and that they have no objection to the Proposed Action (see Obermeyer 2013 in Appendix B2). The Delaware Nation stated via telephone on April 3, 2014 that they had no objection to the Proposed Action. The NGB and the USAF values its relationship with tribes and will continue to seek opportunities to consult on other planning efforts or matters of known/potential interest to tribes.

#### 4.2.6.4 Summary of Impacts

Construction activities associated with this alternative would be primarily limited to the developed areas of the installation in the areas of the aircraft hangars and airfield pavements,

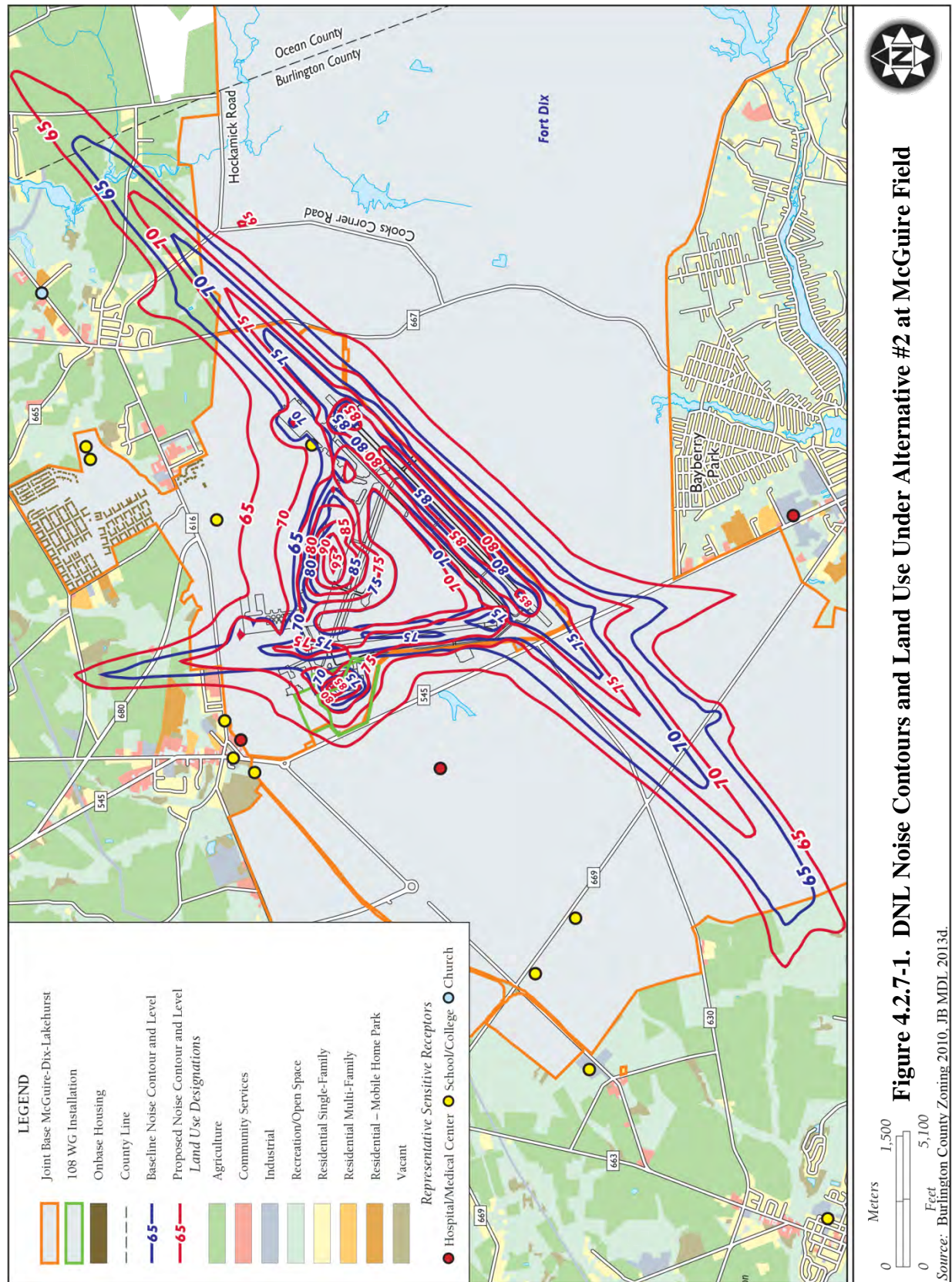
where no archaeological resources are known. A small amount of construction (0.15 acre) for a new simulator building off of Broidy Road would occur in a stand of trees near this developed area. This area was the location of barracks in the 1940s and 1950s and likely has some buried foundations dating to that period. However, those barracks remains are not considered eligible to the NRHP (Duryee 2013). Therefore, based on previous archaeological surveys and historic land use patterns at McGuire Field, the area of proposed construction does not contain any known NRHP-eligible archaeological sites and is considered to have a low potential for containing buried archaeological materials. The New Jersey SHPO has concurred that there would be no historic properties affected under Alternative #2. No traditional resources have been identified. Therefore, no impacts to cultural resources are anticipated at the 108 WG installation under Alternative #2.

#### **4.2.7 Land Use**

The primary source of impacts to land use resulting from Alternative #2 would be from noise. As shown in Table 4.2.7-1 and Figure 4.2.7-1, areas outside of JB MDL boundaries currently exposed to DNLs of 65 dB to 70 dB would increase by approximately 350 acres, overall. By zoning districts, Recreation areas affected by DNL of 65 dB to 70 dB would increase by approximately 6 acres. Agricultural areas would increase by approximately 213 acres; Commercial areas would increase by approximately 7 acres, Residential areas would increase by approximately 2 acres, Open Space areas would increase by approximately 109 acres, and non-designated areas would increase by approximately 13 acres. Areas outside of the airport boundaries currently exposed to DNL of 70 dB to 75 dB would increase by approximately 69 acres, overall. By zoning districts, Recreation, Commercial, and other non-designated areas affected by DNL of 70 dB to 75 dB would remain approximately the same; Agricultural areas would increase by approximately 51 acres; Residential areas would increase by approximately 6 acres, and Open Space areas would increase by approximately 11 acres.

**Table 4.2.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the McGuire Field Boundary**

<i>Land Use</i>	65 dB TO 70 dB DNL			70 dB TO 75 dB DNL			<i>Total Change (acres)</i>
	<i>Baseline (acres)</i>	<i>Proposed (acres)</i>	<i>Change (acres)</i>	<i>Baseline (acres)</i>	<i>Proposed (acres)</i>	<i>Change (acres)</i>	
Recreation	<1	6	6	0	0	0	6
Agricultural	214	427	213	10	61	51	264
Commercial	2	9	7	0	<1	<1	7
Residential	13	15	2	7	13	6	8
Open Space	73	182	109	4	16	11	119
Non-designated	9	22	13	0	<1	<1	13
<b>Total Area</b>	<b>311</b>	<b>661</b>	<b>350</b>	<b>21</b>	<b>90</b>	<b>69</b>	<b>419</b>



Agricultural areas would be most likely to be exposed to increases in noise levels, but those levels (60-75 dB DNL) would remain compatible as per FICUN standards (Appendix A, Section A.7). An additional 8 acres of residential use areas would be exposed to DNL above 65 dB, levels considered incompatible as per FICUN standards. With the exception of residences associated with 48 additional people, no churches, schools, or other known noise sensitive receptors would be located within the 65 dB DNL noise contour. The minimal increase in incompatible noise levels would result in minor impacts to land use. A more detailed discussion of aircraft operations and noise can be found in Section 4.2.1, *Noise*.

#### 4.2.7.1 Summary of Impacts

The number of total annual airfield operations would increase by 9,268 (15 percent), and the acreage within the 65 dB DNL (and greater) noise contour off DoD-controlled property would increase by 419 acres. An additional 8 acres of residential use areas would be exposed to DNL greater than 65 dB. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in minor adverse impacts due to an increase in off-airport areas (including residential areas) exposed to noise levels between 65 dB and 75 dB DNL. Airport Hazard Areas would not be affected.

### 4.2.8 Infrastructure and Transportation

#### 4.2.8.1 Potable Water

Water consumption would be expected to increase slightly under Alternative #2 as a result of the increase in personnel; however, an increase in 255 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

#### 4.2.8.2 Wastewater

Wastewater generation would be expected to increase slightly as a result of the increase in 255 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

#### 4.2.8.3 Stormwater

Under Alternative #2, there would be up to 204,009 SF (4.7 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.2.4, *Soils and Water*); however, through implementation of appropriate standard construction practices (as described previously), preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 104,884 SF (2.4 acres) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.2.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #2 would be minimal.

#### 4.2.8.4 Electrical and Natural Gas Systems

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with Alternative #2 would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #2 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.



#### 4.2.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 204,009 SF of additions and alterations to existing facilities and 104,884 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated proposed renovations at JB MDL would generate 2,405,266 pounds (1,203 tons) of renovation debris requiring landfill disposal and proposed new construction at JB MDL would generate 455,197 pounds (228 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at JB MDL would be 1,431 tons.

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Burlington County Resource Recovery Complex has a remaining life expectancy of 5 years and a permitted throughput of 360,000 tons per year (Burlington County 2009). The 1,507 tons of proposed construction debris generated at JB MDL would represent approximately 0.4 percent of the yearly capacity of the landfill. In addition, Burlington County Resource Recovery Complex has room for expansion to meet the needs for future growth (Burlington County 2009). Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 108 WG installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.2.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however,

increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 255 under Alternative #2 (see Table 2.3-12). The increase in personnel would create a potential 255 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #2 would add an additional 510 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #2.

#### **4.2.8.7 Summary of Impacts**

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### **4.2.9 Hazardous Materials and Waste**

#### **4.2.9.1 Hazardous Materials**

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #2.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the

KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #2, the total number of flying hours for the 108 WG would increase from 3,687 to 8,040 (an increase of 118 percent); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 108 WG installation would continue to be followed in future operations associated with Alternative #2 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #2, additions to Hangars 3333 and 3336 are proposed, and internal renovations to Hangar 3322 are proposed. An asbestos survey was performed at the 108 WG installation in 2007. According to the 2007 asbestos report, Hangar 3322 was found to contain ACM in the insulation, floor tiles, and mastic. An LBP survey has not been conducted at the 108 WG installation. However, Hangar 3322 was constructed prior to 1978, and therefore may contain LBP. Hangars 3333 and 3336 were built after 1978 and therefore are assumed to contain no LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, State of New Jersey requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.2.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft, with the exception of ODSs. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #2, the total number of flying hours for the 108 WG would increase approximately 118 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). However, the increase in hazardous waste streams is supportable by the current

infrastructure at the installation. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.2.9.3 Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One of the ERP Sites, SS-39, overlaps with a portion of the existing fuel hydrants that would be capped, as well as the proposed addition to Hangar 3336, under Alternative #2 (Figure 4.2.9-1). Remedial investigation is on-going with this site. It is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.

If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 108 WG Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

#### 4.2.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.

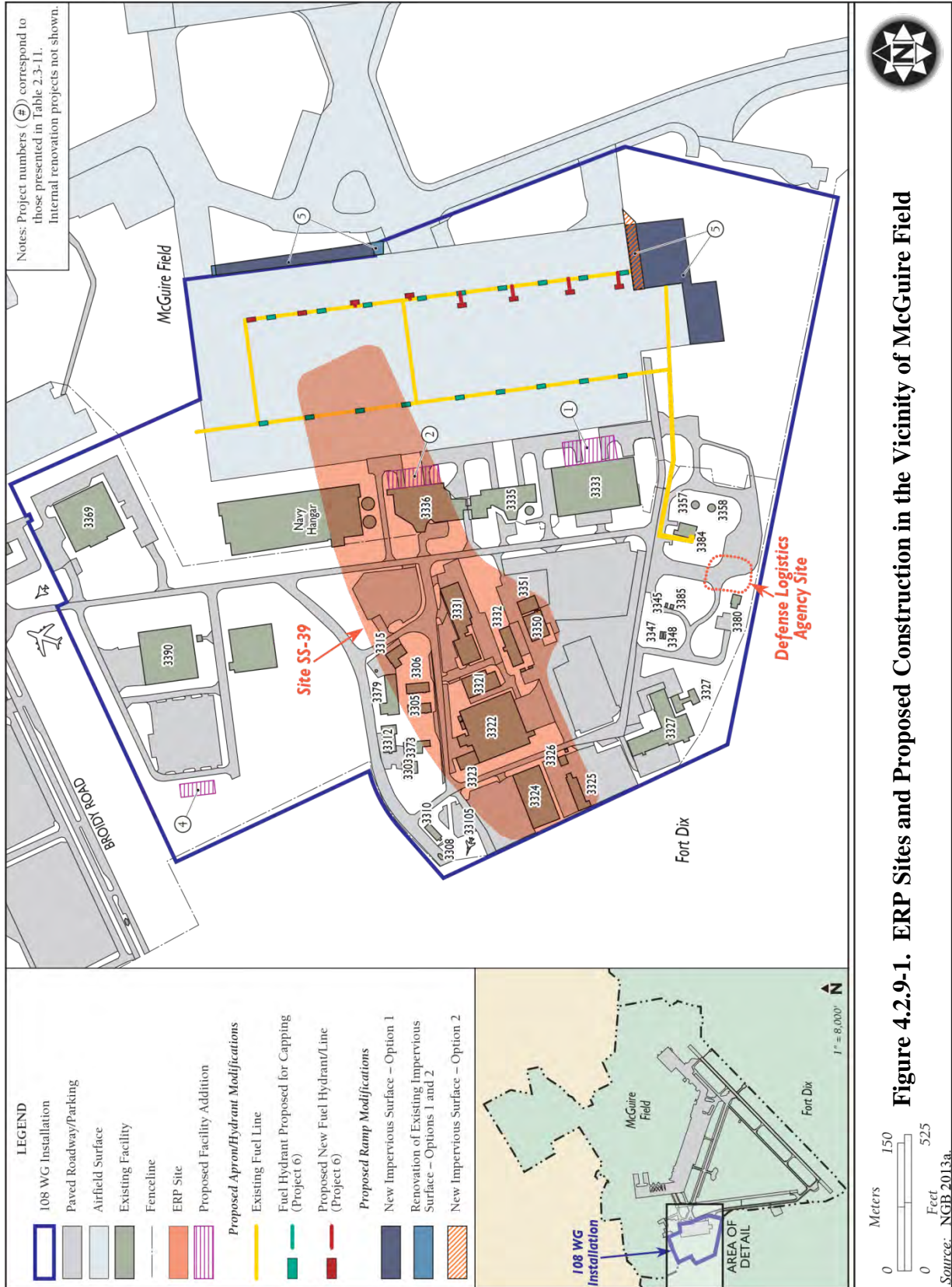


Figure 4.2.9-1. ERP Sites and Proposed Construction in the Vicinity of McGuire Field



#### 4.2.10 Socioeconomics

Under Alternative #2, construction activities would be contained entirely within the boundaries of JB MDL. Economic activity associated with proposed construction activities at the 108 WG installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a minor change in staffing requirements for the 108 WG. Currently, the 108 WG is authorized 1,329 personnel. Under Alternative #2, the KC-46A mission would add an additional 287 military positions (increase in 231 full-time positions and an increase of 56 traditional Guard position) (see Table 2.3-12). Combined with their approximately 390 family members, this would represent less than 0.09 percent of Burlington County and 0.07 percent of Ocean County (assumes 100 percent of increase in off-base population living in each county). Of the 390 family members, approximately 156 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Ocean and Burlington counties. It is anticipated that there is enough capacity within the schools in these counties to absorb this minimal increase in school age children.

An increase in 287 military personnel positions would amount to an increase of approximately 21.6 percent to the existing 108 WG personnel. Total payroll associated with the 231 full-time personnel would amount to an estimated total annual salary increase of approximately \$21 million.

While there is housing located on JB MDL, currently all 108 WG personnel live off-installation. Under Alternative #2, there is ample on-base housing to accommodate the 199 new active associate personnel should they choose to live on base. However, currently only 20 percent of active duty personnel live on base. Therefore, it is assumed that approximately 20 percent of the 199 proposed active associate personnel (approximately 40 individuals) and their families would live on base. This could in turn result in approximately 247 personnel living off the installation and purchasing 247 homes as personnel relocate to the area. This would represent less than 0.2 percent of the total housing units in Burlington County and less than 0.1 percent of Ocean County. However, not all the military personnel who would relocate would own homes and personnel would most likely be distributed between the two counties.

## 4.2.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

## 4.2.11 Environmental Justice and the Protection of Children

## 4.2.11.1 Minority and Low-Income Populations

As presented in Table 4.2.11-1, of the roughly 128 persons (48 more than baseline) that would be affected by a DNL above 65 dB, approximately 23 would be minority (18 percent). This is an increase of 11 people, or 3 percent, of minorities affected. The number of low-income persons affected by a DNL greater than 65 dB would be approximately 6 (an increase of 2 people and less than 1 percent). Overall, the number of persons affected by a DNL of 65 dB and greater would increase slightly under this alternative, and the increase in the percentage of minority and low-income persons affected would be minor. Therefore, impacts to minority or low-income populations in the vicinity of JB MDL would not be significant and there would be no disproportionate impacts to minority or low-income populations.

**Table 4.2.11-1. Population within Alternative #2 Noise Contours, JB MDL<sup>1</sup>**

Noise Contour	Total Population	Minority Population	Percent Minority	Low-Income Population	Percent Low-Income <sup>2</sup>
65-70	77	14	18	4	5
70-75	51	9	18	2	4
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>128</b>	<b>23</b>	<b>18</b>	<b>6</b>	<b>5</b>

Note: 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

Sources: USCB 2010b and 2011c.

## 4.2.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there are no Kindergarten through Grade 12 off-installation schools that are exposed to a DNL of 65 dB or above; however, there is one child development center located within the 65 dB contour. Under Alternative #2 there would be no new Kindergarten through Grade 12 schools exposed to a DNL of 65 dB or above; however, the child development center that is currently under the 65 dB contour would be located under the 70 dB contour.

#### 4.2.11.3 Summary of Impacts

Although the acreage and the number of persons within the 65 dB DNL noise contours would increase slightly under this alternative, the percentage of minority and low-income persons affected would remain approximately the same as baseline, and no additional schools would be located within the vicinity of JB MDL exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.

### **4.3           ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION**

#### **4.3.1       Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #3 are considered and compared with current conditions to assess potential impacts at Portsmouth IAP. Details of the methodologies used for this section can be found in Appendix A, Section A.1.2.

DNL noise contours for the KC-46A under Alternative #3 were generated using INM. Based KC-135 operations were removed and replaced with KC-46A operations using the B-767-300 and the standard flight profile data provided with INM as substitute data and applying the data to the current based KC-135 flight tracks and operational procedures (INM does not have a standard profile or noise curve data for the KC-46A). Using the standard flight profile data provided for this substitute aircraft in INM provides an accurate analysis of noise contour comparisons that would be expected with the new KC-46A. Flight profiles, flight tracks, and operational procedures currently being used by the KC-135 were used in this INM program.

##### **4.3.1.1     Aircraft Noise**

Under Alternative #3, 12 KC-46As would be based at Pease ANG, replacing the current 8 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and the KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures; however, most tactical procedures would be accomplished primarily in the simulator or at other locations away from Portsmouth IAP.

Under Alternative #3, the 157 ARW would have an increase in flying hours generating an increase in airfield operations by 2,700 from 6,140 to 8,840 operations (a 44 percent increase). Aircraft operations per average annual day (arrivals and departures [1.68] and closed patterns [6.73]) would increase under Alternative #3 to 2.42 arrivals and departures and 9.7 closed patterns/day. The percentage of 157 ARW aircraft operations occurring during environmental night (10 p.m. to 7 a.m.) would remain at the same 4 percent as under baseline conditions. The

total number of operations flown by all other aircraft at Portsmouth IAP would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition (Table 4.3.1-1).

**Table 4.3.1-1. Portsmouth IAP Annual Aircraft Operations with Proposed KC-46A**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	4,231	189	4,231	189	8,462	378	8,840
Other Aircraft <sup>3</sup>	14,541	1,094	14,853	782	29,394	1,876	31,270
<b>Total</b>	<b>18,772</b>	<b>1,283</b>	<b>19,084</b>	<b>971</b>	<b>37,856</b>	<b>2,254</b>	<b>40,110</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft) including: Lear 25, 35, and Airbus 319.

Source: 157 ARW 2013a.

Figure 4.3.1-1 depicts the noise exposure area from aircraft operations after the conversion from the current 8 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.3.1-2 compares baseline noise contours with Alternative #3 contours. The aircraft operations modeled include all transient aircraft, and general and commercial aircraft operations depicted in the most current Portsmouth IAP 2012 noise modeling update. Table 4.3.1-2 shows changes to the acreage of land within each noise contour under Alternative #3.

**Table 4.3.1-2. Land Areas within DNL Contours at Portsmouth IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #3**

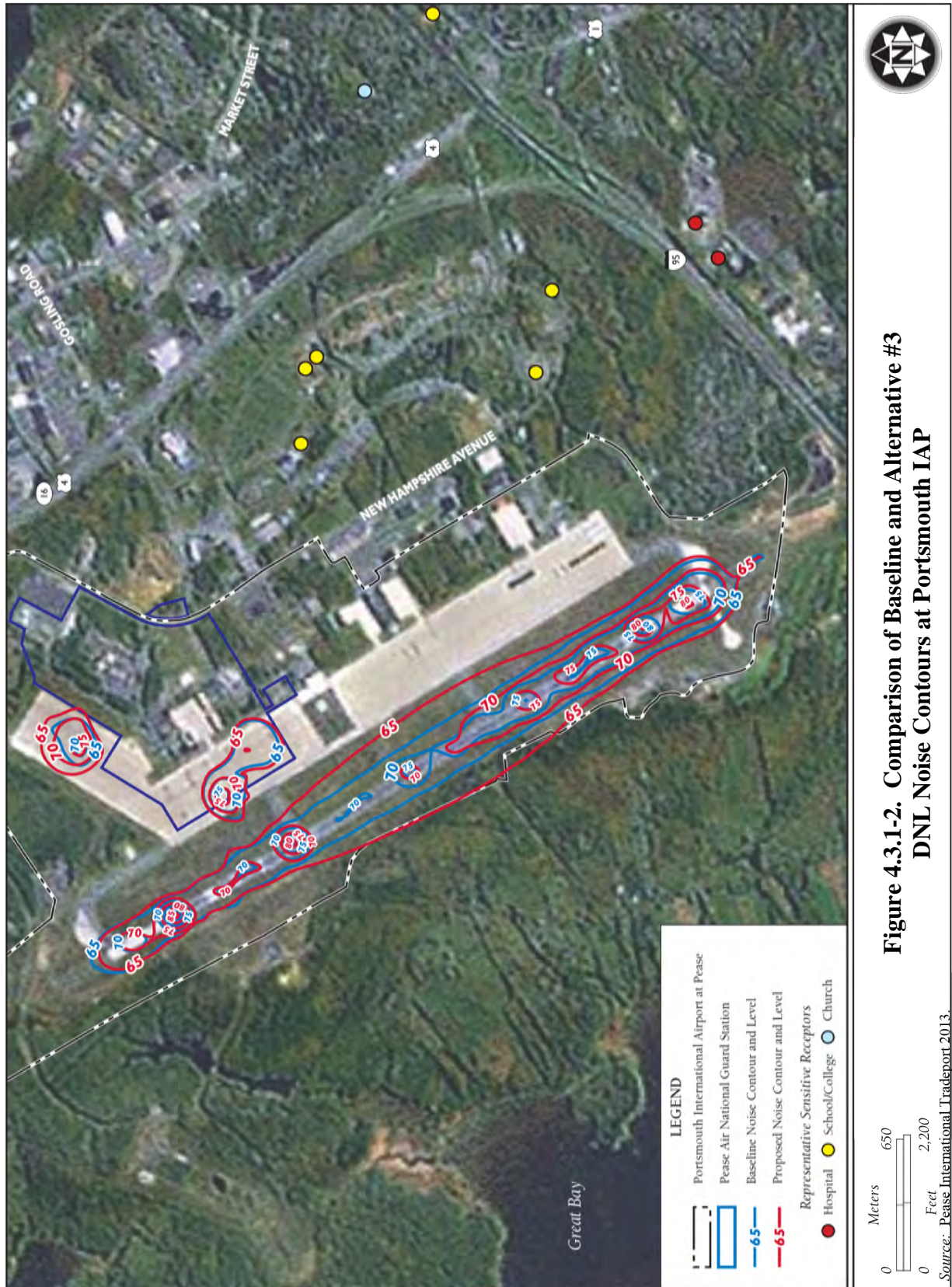
Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #3 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	237	0	237	334	4	338	101
70-75	81	0	81	101	0	101	21
75-80	16	0	16	27	0	27	11
80-85	1	0	1	3	0	3	2
>85	0	0	0	0	0	0	0
<b>Total</b>	<b>334</b>	<b>0</b>	<b>334</b>	<b>465</b>	<b>4</b>	<b>469</b>	<b>135</b>

Notes: Numbers may not add precisely due to rounding.  
 DNL = Day Night Average Sound Level; dB = decibel



**Figure 4.3.1-1. DNL Noise Contours Under Alternative #3 at Portsmouth IAP**







Under Alternative #3, the DNL noise contours would expand slightly in all directions from the baseline DNL noise contours. Overall, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 135 acres, or 40 percent, but would remain primarily on airport property with approximately 4 of these acres off the airport property. Information regarding number of people residing in this area can be found in Section 4.3.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.3.7, *Land Use*.

#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #3 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above DNL65 dB.

#### *Single Event Sound Analysis*

Under Alternative #3, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #3, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

#### *Potential Hearing Loss*

As shown in Table 4.3.1-1, there is no property off the Portsmouth IAP that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.3.1.2 Construction Noise

There would be some minor noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006) (see Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at Portsmouth IAP dominate the local noise environment. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #3 would be negligible.

#### 4.3.1.3 Summary of Impacts

The number of annual airfield operations would increase by 2,700 (44 percent increase in 157 ARW operations, 7 percent increase in total airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property. There would be no potential for hearing loss off the airport and no increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### 4.3.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 157 ARW of the NH ANG at Pease ANG, in Newington, New Hampshire. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Pease ANG were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Rockingham County is a maintenance area for O<sub>3</sub>, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #3.

##### 4.3.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at Pease ANG include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest

3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.3.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Pease ANG. Table 4.3.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Pease ANG. As shown in Table 4.3.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.3.2-1. Comparison of Baseline and Proposed  
Annual Operational Emissions, 157 ARW**

<i>Baseline</i>	Annual Emissions, tons/year					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	2.41	36.29	73.94	6.29	0.33	0.33
AGE	0.00	0.01	0.07	0.00	0.00	0.00
Engine Tests	0.10	1.47	0.40	0.06	0.01	0.01
POVs	1.11	19.06	0.91	0.01	0.04	0.02
<b>Total</b>	<b>3.62</b>	<b>56.84</b>	<b>75.32</b>	<b>6.36</b>	<b>0.37</b>	<b>0.35</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	15.24	56.95	157.41	8.96	0.61	0.52
AGE	0.01	0.01	0.10	0.00	0.00	0.00
Engine Tests	0.77	2.63	0.71	0.08	0.01	0.01
POVs	0.91	17.45	0.70	0.01	0.04	0.02
<b>Total</b>	<b>16.93</b>	<b>77.05</b>	<b>158.92</b>	<b>9.06</b>	<b>0.66</b>	<b>0.55</b>
<b>Net Increase</b>	<b>13.31</b>	<b>20.21</b>	<b>83.60</b>	<b>2.70</b>	<b>0.28</b>	<b>0.19</b>
<b>MOB2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>3.68</b>	<b>0.36</b>	<b>1.11</b>	<b>0.42</b>	<b>0.76</b>	<b>0.54</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>250</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>250</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Pease ANG would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 ton per year.

Table 4.3.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at Pease ANG, along with the net increase in comparison with the baseline. As shown in Table 4.3.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.3.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 157 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	17,303	0.48	0.54	17,480
AGE	1,571	0.04	0.05	1,588
Engine Tests	172	0.00	0.01	174
POVs	597	0.00	0.00	597
<b>Total</b>	<b>19,643</b>	<b>0.53</b>	<b>0.59</b>	<b>19,839</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	24,391	0.64	0.72	24,629
AGE	2,262	0.06	0.07	2,286
Engine Tests	233	0.01	0.01	235
POVs	612	0.00	0.00	612
<b>Total</b>	<b>27,499</b>	<b>0.71</b>	<b>0.80</b>	<b>27,762</b>
<b>Net Increase</b>	<b>7,855</b>	<b>0.18</b>	<b>0.21</b>	<b>7,924</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

*Notes:* Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle; GMV = government motor vehicle

#### 4.3.2.2 Construction Emissions

The KC-46A beddown at Pease ANGS would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.3.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Pease ANGS. As shown in Table 4.3.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants. For construction emissions, the project option with the greatest potential to emit, was used in the analysis (see Table 2.3-17).

**Table 4.3.2-3. Annual Construction Emissions Under Alternative #3**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 (Option 2) - Renovation/Addition to Building 264	0.93	1.48	0.26	0.03	1.33	1.11	494.25
Project #2 - Addition to Building 166	0.35	0.55	0.10	0.01	0.44	0.41	185.26
Project #3 - Internal Renovations to Hangar 251	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 (Option 1) - Addition/Alteration to Hangar 253	1.52	2.42	0.43	0.05	2.45	1.88	808.91
Project #5 - (Option 1) - Demolition/Addition/Alteration to Hangar 254	1.48	2.36	0.41	0.04	2.37	1.83	789.52
Project #6 - Alter Aircraft Taxiway	0.31	0.75	0.08	0.04	0.18	0.16	185.62
Project #7 - Demolition/Modify/Install Aprons and Hydrants	0.07	0.16	0.02	0.01	0.04	0.04	42.16
Project #8 - Repave Quad Apron	1.16	2.80	0.28	0.14	1.01	0.71	715.98
<b>Total maximum emissions</b>	<b>6.12</b>	<b>10.99</b>	<b>1.64</b>	<b>0.33</b>	<b>7.86</b>	<b>6.18</b>	<b>3,344.29</b>
<b>PSD/de minimis Threshold</b>	<b>250</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.3.2.3 Summary of Impacts

The Pease ANGS installation is in a maintenance area for O<sub>3</sub>, and is therefore subject to *de minimis* thresholds. While there are increases in operational criteria pollutant emissions, they are below the PSD/*de minimis* thresholds for all pollutants and are not significant. Operational GHG emissions are within thresholds in the PSD tailoring rule. Impacts from construction emissions and operational HAP emissions are negligible.

### 4.3.3 Safety

#### 4.3.3.1 Ground Safety

Existing facilities at Pease ANGS for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013a).

Proposed renovation and infrastructure improvement projects related to this alternative would not penetrate any RPZs or impact aircraft takeoff or landing (Headquarters AMC and NGB 2013a). New construction and building renovation activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at Portsmouth IAP. For example, the KC-46A would follow established local approach and departure patterns used. Therefore, flight activity and subsequent operations would not require changes to RPZs.

Under this alternative, no new facilities are proposed for Pease ANG. Planned construction at the installation comprises renovation and additions to several hangars; construction and upgrades to the taxiway; and demolition and installation of new fuel hydrants and lines on the parking apron. None of the construction or demolition would be in conflict with the current QD arcs.

Providing new and renovated facilities for the 157 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 157 ARW.

Construction activities would not involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.3.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, Pease ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and



are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #3, there would be an increase of approximately 44 percent 157 ARW airfield operations (7 percent in total Portsmouth IAP operations) at Portsmouth IAP compared to existing conditions. This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates, and with a new airframe and technological improvements the KC-46A would be expected to have a similar safety record. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (157 ARW 2011b).

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Portsmouth IAP as a result of Alternative #3 would be expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.3.3.3 Summary of Impacts

There would be a 44 percent increase in actual 157 ARW airfield operations (7 percent increase in total airfield operations) at Portsmouth IAP with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and

procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### **4.3.4 Soils and Water**

##### **4.3.4.1 Soils**

Under Alternative #3, new construction would consist of eight separate projects resulting in up to 130,966 SF (3.0 acres) of new construction footprint and up to 23,617 SF (0.5 acre) of new impervious surface. There are two construction scenarios for the aircraft conversion under consideration; only one of these options for each project would be implemented. The total construction footprint analyzed represents the largest possible footprint of each of the options (Table 2.3-17). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #3 would occur primarily on Urban land-Canton complex (3 to 15 percent slopes), with a small amount of the new construction footprint on Urban land and Udorthents. These three soils are either not rated or not limited for road or small commercial building development and may require onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2013). Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply.

Under Alternative #3, there would be 130,966 SF (3.0 acres) of temporary soil disturbance as a result of the proposed construction. To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices, as described in the Portsmouth IAP SWPPP (Portsmouth IAP 2011) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the USEPA New England Region to obtain coverage under the NPDES General Permit for Discharges from Construction Activities prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #3 would be minimal.

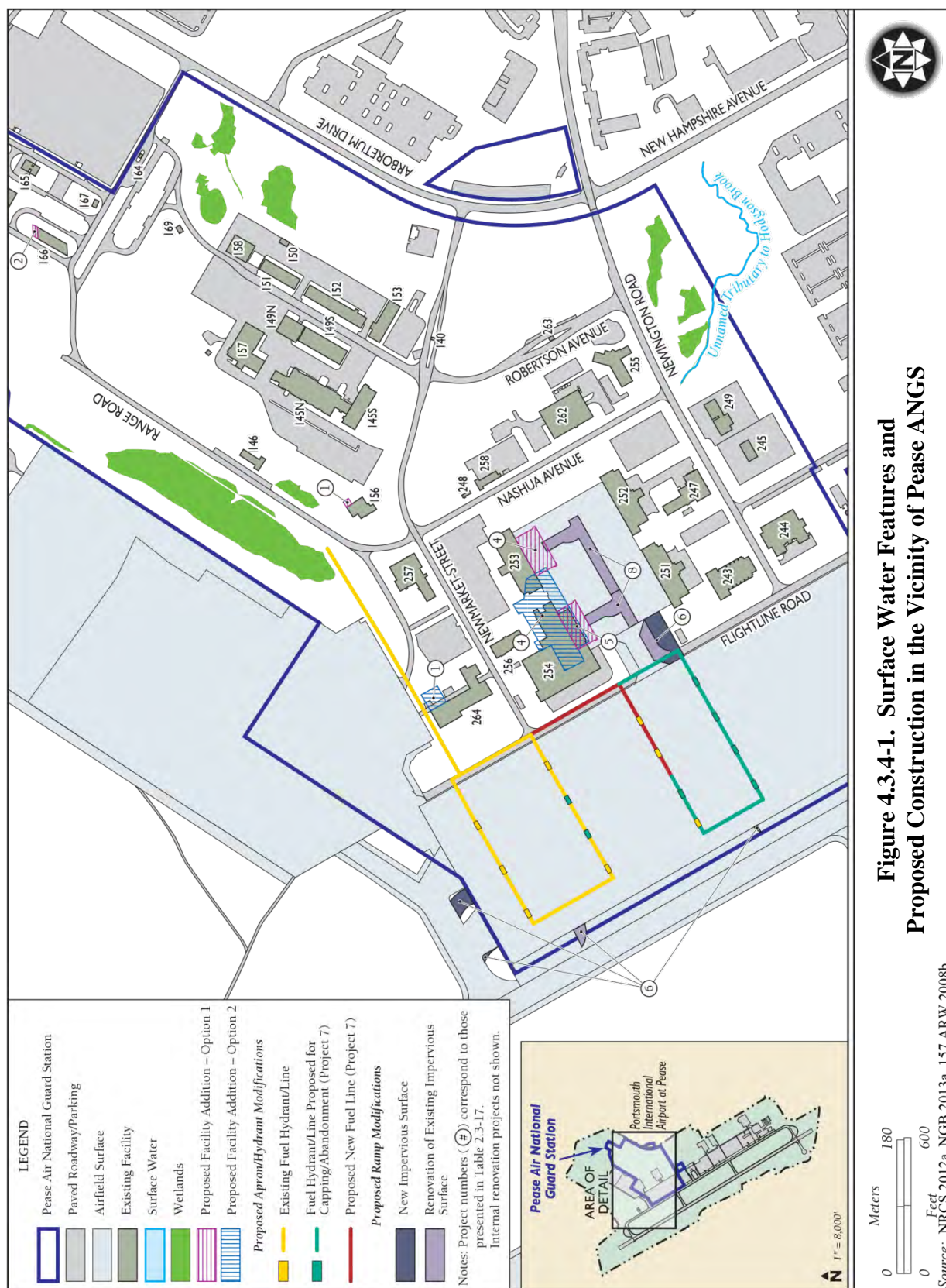
#### 4.3.4.2 Surface Water

As a result of implementation of Alternative #3, there would be approximately 23,617 SF (0.5 acre) of new impervious surface from the proposed construction (Figure 4.3.4-1). This could result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:

- water harvesting and natural open space,
- installation of retention/detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #3 would be minimal.



#### 4.3.4.3 Groundwater

As a result of Alternative #3, the increase in the amount of impervious surface (0.5 acre) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices, as described above. The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.3.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.3.4.5 Summary of Impacts

There would be approximately 3.0 acres of temporary soil disturbance and 0.5 acre of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### 4.3.5 Biological Resources

#### 4.3.5.1 Vegetation

Construction of new facilities associated with Alternative #3 at the 157 ARW installation would occur primarily on currently paved areas or actively managed (i.e., mowed and landscaped) areas, and would result in an increase of 23,617 SF (0.5 acre) of impervious surfaces. No native vegetation would be impacted. Impacts to the vegetation at the installation would be negligible due to the lack of sensitive vegetation in the project area.

#### 4.3.5.2 Wildlife

Under Alternative #3, impacts to wildlife due to construction would be minor. Noise associated with construction may cause wildlife to temporarily avoid the area, including those that are protected under the MBTA. Noise associated with construction activities, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Operational noise levels under Alternative #3 would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft. Under Alternative #3, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #3, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.). In addition, an additional 4 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. As a result, since ambient noise levels within the vicinity are relatively high under existing conditions, the Proposed Action under Alternative #3 would be unlikely to substantially increase enough to preclude wildlife from utilizing the area as they currently do.

Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #3, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the KC-46A at Portsmouth IAP would increase by approximately 44 percent over the KC-135 baseline operations (7 percent increase in total airfield operations). An increase in airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.3.3, *Safety*). The 157 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches,



closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.3.5.3 Special Status Species

No federally threatened and endangered species and eight state listed species are currently known to occur on Portsmouth IAP. The USFWS New England Field Office concurred in a letter written on March 25, 2014 that no federally listed or proposed, threatened or endangered species or critical habitat are known to occur in the project area. There is only a low potential for additional species to occur within the vicinity due to the lack of habitat. Under Alternative #3, impacts to special status species would be similar to that described under wildlife. Impacts due to construction and proposed operations would be minor. Operational noise levels under Alternative #3 would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft. Under Alternative #3, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #3, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.). In addition, an additional 4 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. As a result, since ambient noise levels within the vicinity are relatively high under existing conditions, the Proposed Action under Alternative #3 would be unlikely to substantially increase enough to preclude wildlife from utilizing the area as they currently do.

Therefore, there would be no effect to federally listed species and impacts to state listed species would be minimal under Alternative #3.

#### 4.3.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #3.

#### 4.3.5.5 Summary of Impacts

Construction of new facilities associated with this alternative would occur primarily on currently paved areas or actively managed areas. Therefore, impacts to vegetation would be negligible. There would be no impacts to wetlands under this alternative. Impacts to wildlife and sensitive species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction. A 44 percent increase in 157 ARW (7 percent increase

in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Impacts to state listed species would be minor. No federally listed species or critical habitat is known to occur on Portsmouth IAP, therefore there would be no impacts to federally listed species.

#### **4.3.6 Cultural Resources**

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,382 to 1,553 would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

##### **4.3.6.1 Archaeological Resources**

The entire undeveloped 157 ARW installation has been intensively surveyed for archaeological resources and it has been determined that no NRHP-eligible archaeological resources are present on the installation. The New Hampshire SHPO has concurred with this determination (157 ARW 2009, Muzzey 2009). In the unlikely event that archaeological or human remains are identified during construction, all activities in the area of the discovery would cease and the Environmental Manager would contact a qualified archaeologist to evaluate the discovery. Under these conditions, there would be no adverse impact to archaeological resources with implementation of Alternative #3.

##### **4.3.6.2 Architectural Resources**

At the 157 ARW installation, six buildings (Buildings 156, 166, 251, 253, 254, and 264) are proposed for additions, interior renovations, or demolition. Buildings 251, 253, and 254 have been inventoried, evaluated, and determined not eligible to the NRHP with concurrence from the New Hampshire SHPO (see Muzzey 2009 and St. Louis 2009 in Appendix B4). Buildings 156, 166, and 264 were all recently constructed and so they are less than 50 years old, are not Cold War-era resources, and would not be eligible under Criteria Consideration G. As such, Buildings 156, 166, and 264 are not eligible to the NRHP. SHPO consultation for this EIS has provided concurrence that no historic resources are present within the proposed project area (see Appendix B3). Therefore, there would be no impact to architectural resources as a result of implementation of Alternative #3.

##### **4.3.6.3 Traditional Resources**

The 157 ARW installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the

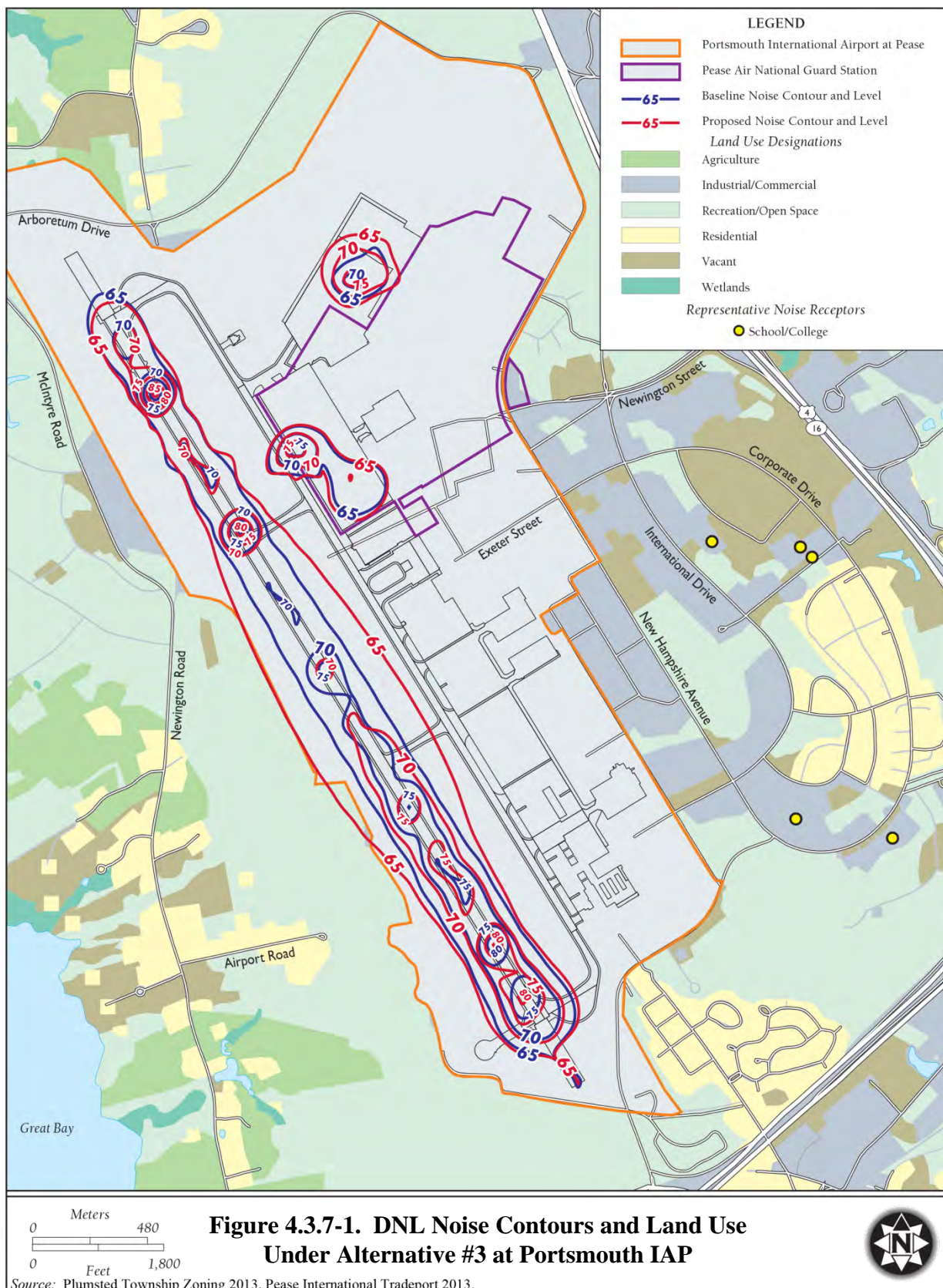
157 ARW. Government-to-government consultation for this action has been conducted with this Tribe in recognition of their status as a sovereign nation. This consultation also provides information regarding tribal concerns per Section 106 of the NRHP and information on traditional resources that may be present on or near the installation. The Penobscot Indian Nation has responded and indicated that they have no issues with the Proposed Action. The NGB and the USAF values its relationship with tribes and will continue to seek opportunities to consult on other planning efforts or matters of known/potential interest to tribes.

#### **4.3.6.4 Summary of Impacts**

Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. None of the buildings that would be impacted under the Proposed Action are eligible to the NRHP. The New Hampshire SHPO has concurred with the determination that no historic properties would be affected (Muzzey 2013). No traditional resources are known to occur at the installation. Therefore, no impacts to cultural resources are anticipated at the 157 ARW installation under Alternative #3.

#### **4.3.7 Land Use**

Under this alternative, the number of operations at Pease ANGTS would increase, resulting in a slight increase in average noise levels as measured as discussed in Section 3.3.1, *Noise*. An additional 4 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. The majority of this area is zoned for Open Space/Conservation, which under FAA Regulation 14 CFR Part 150, effective January 18, 1985, is considered a compatible land use up to within this range of noise exposure. The primary source of impacts to land use resulting from Alternative #3 would be from noise. As shown in Table 4.3.7-1 and Figure 4.3.7-1, new areas outside of the airport boundaries would be exposed to DNL of 65 dB to 70 dB. By zoning areas, Recreation areas affected by DNL of 65 dB to 70 dB would remain the same; Open Space areas would increase by approximately 3.6 acres; and non-designated areas would increase by less than 1 acre. However, all of these land uses are considered compatible with this range of DNL under FICUN. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB DNL off-airport noise contour areas. Therefore, Alternative #3 is compatible with current land use and zoning designations and would result in negligible impacts. A more detailed discussion of aircraft operations and noise under Alternative #3 can be found in Section 4.3.1, *Noise*.



**Table 4.3.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Portsmouth IAP**

<i>Land Use</i>	<i>Baseline Total (acres)</i>	<i>Proposed Total (acres)</i>	<i>Change Total (acres)</i>
Recreation	0	0	0
Open Space	0	3.6	3.6
Non-designated	0	0.3	0.3
<b>Total Area</b>	<b>0</b>	<b>3.9</b>	<b>3.9</b>

#### 4.3.7.1 Summary of Impacts

The number of total annual airfield operations would increase by 2,700 (7 percent), and the acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts due to an increase in off-airport areas exposed to noise levels above 65 dB DNL. Airport Hazard Areas would not be affected.

### 4.3.8 Infrastructure and Transportation

#### 4.3.8.1 Potable Water

Water consumption would be expected to increase slightly under Alternative #3 as a result of the increase in personnel; however, an increase in 128 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

#### 4.3.8.2 Wastewater

Wastewater generation would be expected to increase slightly as a result of the increase in 128 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

#### 4.3.8.3 Stormwater

Under Alternative #3, there would be up to 130,966 SF (3.0 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.3.4, *Soils and Water*); however, through implementation of appropriate standard construction practices, (as described previously),

preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 23,617 SF (0.5 acre) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.3.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #3 would be minimal.

#### 4.3.8.4 Electrical and Natural Gas Systems

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with this alternative would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #3 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.3.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 130,966 SF of additions and alterations to existing facilities and 23,617 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Pease ANG S would generate 1,544,089 pounds (772 tons) of renovation debris requiring landfill disposal and proposed new construction at Pease ANG S



would generate 102,498 pounds (51 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at Pease ANGTS would be 823 tons.

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Turnkey Recycling and Environmental Enterprise Landfill has a remaining life expectancy of 7 years and a permitted throughput of 900,000 tons per year (New Hampshire Department of Environmental Services 2009). The 823 tons of proposed construction debris generated at Pease ANGTS would represent less than 1 percent of the yearly capacity of the landfill. Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 157 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.3.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 128 under Alternative #3 (see Table 2.3-18). The increase in personnel would create a potential 128 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #3 would add an additional 256 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well

as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation and level of service. Therefore, impacts to transportation infrastructure would not be significant under Alternative #3.

#### 4.3.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increased demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### 4.3.9 Hazardous Materials and Waste

#### 4.3.9.1 Hazardous Materials

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #3.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #3, the total number of flying hours for the 157 ARW would increase from 6,219 to 8,040 (a 29 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be

required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 157 ARW installation would continue to be followed in future operations associated with Alternative #3 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #3, additions and renovations to Buildings 156, 264, 166 and Hangars 251, 253, and 254 are proposed. According to the 1997 asbestos report, Hangars 251 and 254 were found to contain ACM in the insulation, floor tiles, and mastic. A LBP survey has not been conducted at the 157 ARW installation. However, Hangars 251, 253, and 254 were built prior to 1978 and may contain LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, New Hampshire requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.3.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft, with the exception of ODSs. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #3, the total number of flying hours for the 157 ARW would increase approximately 29 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

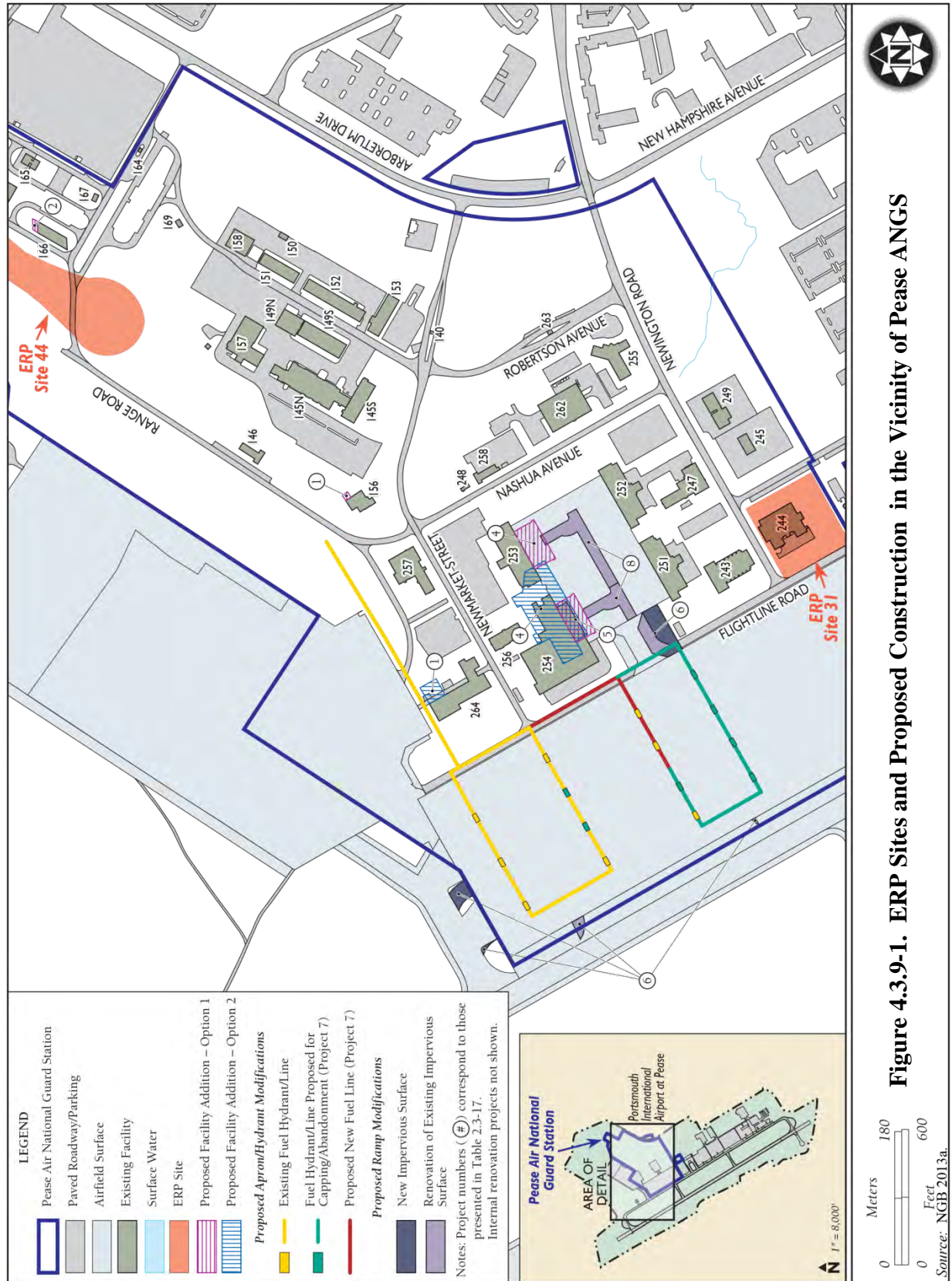
#### 4.3.9.3 Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the

selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

None of the ERP sites overlap the proposed construction projects under Alternative #3 (Figure 4.3.9-1). If contaminated media (e.g., soil, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 157 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.



#### 4.3.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites as there are no sites that overlap with areas proposed for ground disturbance. Impacts relative to hazardous materials and wastes would be negligible.

#### 4.3.10 Socioeconomics

Under Alternative #3, construction activities would be contained entirely within the boundaries of Portsmouth IAP. Economic activity associated with proposed construction activities at the 157 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities under this alternative would result in a change in staffing requirements for the 157 ARW. Currently, the 157 ARW is authorized 1,382 personnel. Under Alternative #3, the KC-46A mission would add an additional 171 military positions (increase in 115 full-time positions and 56 traditional Guard positions) (see Table 2.3-18). Combined with their approximately 233 family members, this would represent less than 0.08 percent of Rockingham County. Of the 233 family members, approximately 92 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Rockingham County. It is anticipated that there is enough capacity within the schools in this county to absorb this minimal increase in school age children.

An increase in 171 military personnel positions would amount to an increase of approximately 12 percent to the existing 157 ARW personnel. Total payroll associated with the 115 full-time personnel would amount to a total estimated annual salary increase of approximately \$9.5 million.

All 157 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 171 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.13 percent of the total housing units in Rockingham County. However, not all the military personnel who would relocate would own homes.



#### 4.3.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

### **4.3.11 Environmental Justice and the Protection of Children**

#### 4.3.11.1 Minority and Low-Income Populations

Under Alternative #3, there would be no residential populations, including no minority or low-income populations, located within the vicinity of Portsmouth IAP exposed to DNL greater than 65 dB. Therefore, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Portsmouth IAP.

#### 4.3.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there is no off-installation Kindergarten through Grade 12 schools that are exposed to DNL of 65 dB or above. Under Alternative #3 there would be no new Kindergarten through Grade 12 schools exposed to DNL of 65 dB or above. Therefore, under Alternative #3 there would be no special health or safety risks to children.

#### 4.3.11.3 Summary of Impacts

Although the acreage within the 65 dB DNL noise contours would increase slightly under this alternative, there are no residential areas within the noise contours and no additional schools would be located within the vicinity of Portsmouth IAP exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.

#### **4.4 ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION**

##### **4.4.1 Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #4 are considered and compared with current conditions associated with the most current approved and published baseline noise study to assess potential impacts. Details of the noise modeling methodologies used for this section can be found in Appendix A, Section A.1.2.

Actual 2012 KC-135 airfield operations were identified in Table 2.3-19. This data was used in determining the proposed KC-46A airfield operations based on most current home-station sorties and airfield operations to provide a more accurate determination of the number of airfield operations for the Proposed Action. Under this analysis, the proposed airfield operations are compared to the most current approved and published 2006 baseline noise study for Pittsburgh IAP.

The DNL noise contours for the KC-46A under Alternative #4 were generated using INM. Based KC-135 operations were removed and replaced with KC-46A operations using the B-767-300 and the standard flight profile data provided with INM as substitute data and applying the data to the current based KC-135 flight tracks and operational procedures (INM does not have a standard profile or noise curve data for the KC-46A). Using the standard flight profile data provided for this substitute aircraft in INM provides an accurate analysis of noise contour comparisons that would be expected with the new KC-46A. Flight profiles, flight tracks, and operational procedures currently being used by the KC-135 were used in this INM program.

##### **4.4.1.1 Aircraft Noise**

Under Alternative #4, 12 KC-46As would be based at Pittsburgh ANG, replacing the current 16 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and the KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. KC-46A aircraft flight profiles would continue to fly the same standard flight profiles for departures and arrivals and closed pattern airfield training. KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135; however most tactical procedures would be accomplished in the simulator and at the other locations away from Pittsburgh IAP.

Under Alternative #4, the 171 ARW aircraft would fly a total of 8,040 hours resulting in 2,010 annual sorties of which it is expected that up to 1,186 sorties would be flown at Pittsburgh ANG. Baseline conditions for the KC-135 are represented here as the same number of the Pittsburgh ANG airfield operations published in the Pittsburgh IAP FAR Part 150 Study (ACAA 2006). Based on 1,186 annual home-station sorties with an average of 7.78 operations per sortie, there would be 9,226 annual home-station operations, or a reduction of 3,834 airfield operations annually at Pittsburgh IAP. This would decrease the average daily airfield operations from 35.8 to 25.3 as shown in Table 4.4.1-1. The 171 ARW KC-46A operations would be approximately 3 percent of all aircraft operations at the airfield under the current approved FAR Part 150 Noise Compatibility Update.

**Table 4.4.1-1. Changes to Pittsburgh IAP Airfield Operations with Proposed KC-46A  
Based on FAR Part 150 Baseline**

<i>Unit</i>	<i>Total Based KC-135 (Average Daily Airfield Operations)</i>	<i>Total Based KC-46A (Average Daily Airfield Operations)</i>	<i>Change in Airfield Operations for Proposed KC-46A (% Change)</i>
171 ARW	13,060 <sup>1</sup> (35.8)	9,226 (25.3)	-3,834 (-29.3%)

Note: 1. Operations based on currently approved FAR Part 150.

All operations would remain as described under existing conditions; however, the KC-135 would be replaced by the KC-46A. There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed as documented in Section 3.4.1.4.

Table 4.4.1-2 provides details on the total airfield operations for Pittsburgh IAP under Alternative #4 using the most current FAR Part 150 as the baseline operations. There would be a 1.2 percent decrease in the overall airfield operations from the current baseline operations. There would be approximately 7 percent of the KC-46A airfield operations flown during environmental night. The total number of operations flown by all other aircraft at Pittsburgh IAP would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

**Table 4.4.1-2. Pittsburgh ANG Aircraft Operations with Proposed KC-46A**

<i>Aircraft</i>	<b>DEPARTURES</b>		<b>ARRIVALS</b>		<b>TOTAL<sup>1</sup></b>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	4,287	326	4,275	338	8,562	664	9,226
Other Aircraft <sup>3,4</sup>	140,683	13,505	140,683	13,505	281,366	27,010	308,376
<b>Total</b>	<b>144,970</b>	<b>13,831</b>	<b>144,958</b>	<b>13,843</b>	<b>289,928</b>	<b>27,674</b>	<b>317,602</b>

- Notes:
1. Includes Closed Patterns (which count as two airfield operations).
  2. Night –Between 10 p.m. and 7 a.m. for environmental night.
  3. Other Based aircraft and Transient Aircraft (multiple type aircraft) including: Boeing 747, 717, and the Airbus 321.
  4. Operations based on currently approved FAR Part 150.

Figure 4.4.1-1 depicts the noise exposure area from the aircraft operations after the conversion from the current 16 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.4.1-2 compares baseline noise contours with Alternative #4 contours. The aircraft operations modeled include all transient aircraft and general and commercial aircraft operations depicted in the current approved 2006 FAR Part 150 Noise Compatibility Update. Table 4.4.1-3 shows changes to the acreage of land within each noise contour under Alternative #4.

**Table 4.4.1-3. Land Areas within DNL Contours at Pittsburgh IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #4**

Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #4 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	1,331.5	128.6	1,460.1	1,511	106	1,405	-55
70-75	850.7	0	850.7	915	0	915	64
75-80	468.6	0	468.6	418	0	418	-51
80-85	151.5	0	151.5	159	0	159	8
>85	207.5	0	207.5	162	0	162	-46
<b>Total</b>	<b>3,009.8</b>	<b>128.6</b>	<b>3,138.4</b>	<b>3,165</b>	<b>106</b>	<b>3,059</b>	<b>-79</b>

Notes: DNL = Day Night Average Sound Level; dB = decibel

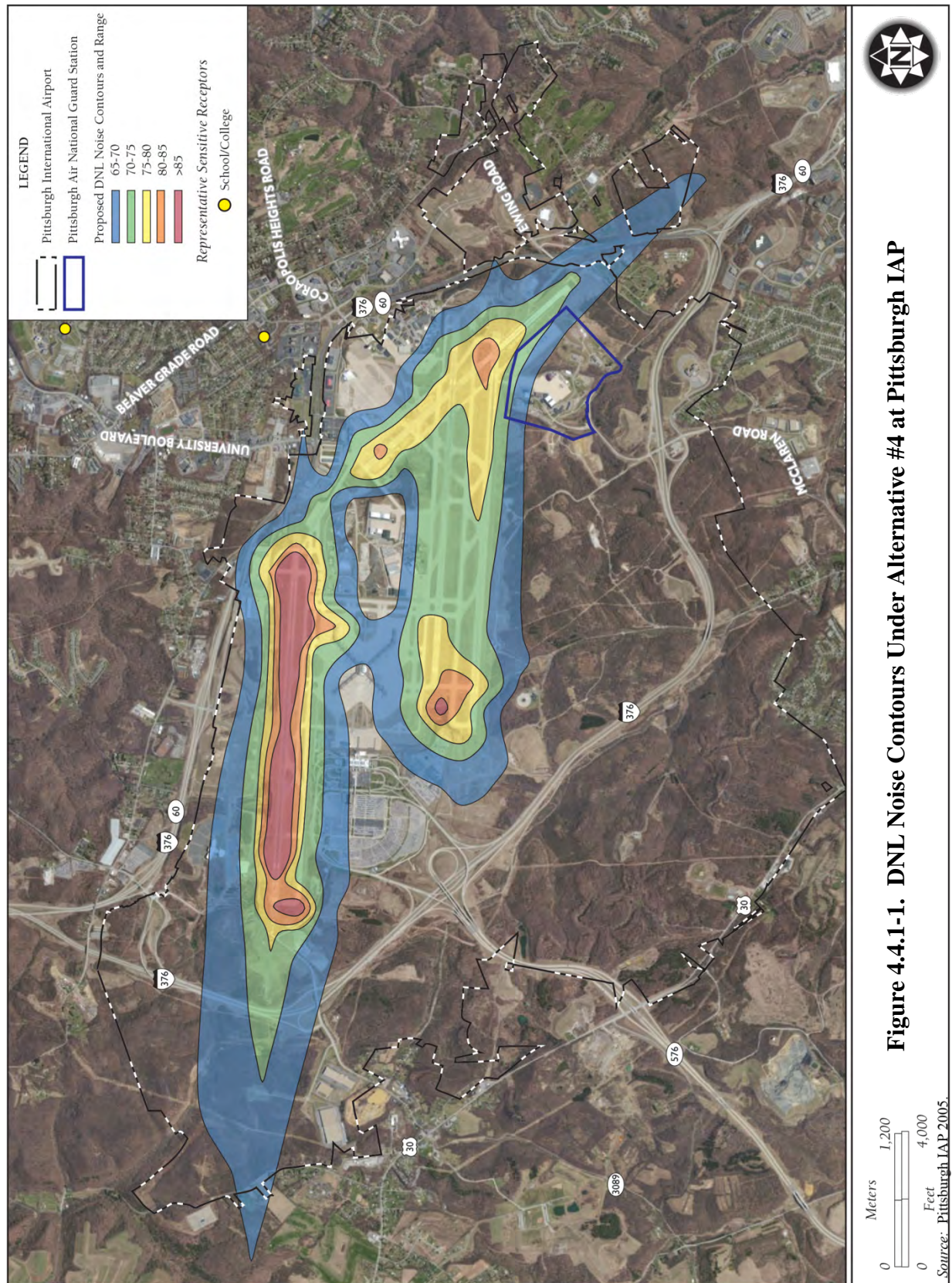
Under Alternative #4, the DNL noise contours would decrease slightly in the areas of arrivals and departures from the DNL baseline contours because of fewer KC-46A airfield operations than depicted in the approved FAR Part 150 and the KC-46A is generally a quieter aircraft (5 dB quieter on landing and 1 dB louder on take-off) than the KC-135.

Overall, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 79 acres, or approximately 2.5 percent, and would remain primarily on airport property with approximately 106 of the acres off airport property. Information regarding the number of people residing in the area can be found in Section 4.4.11, *Environmental Justice and the Protection of Children* and information regarding the area of residential use is located in the Section 4.4.7, *Land Use*.

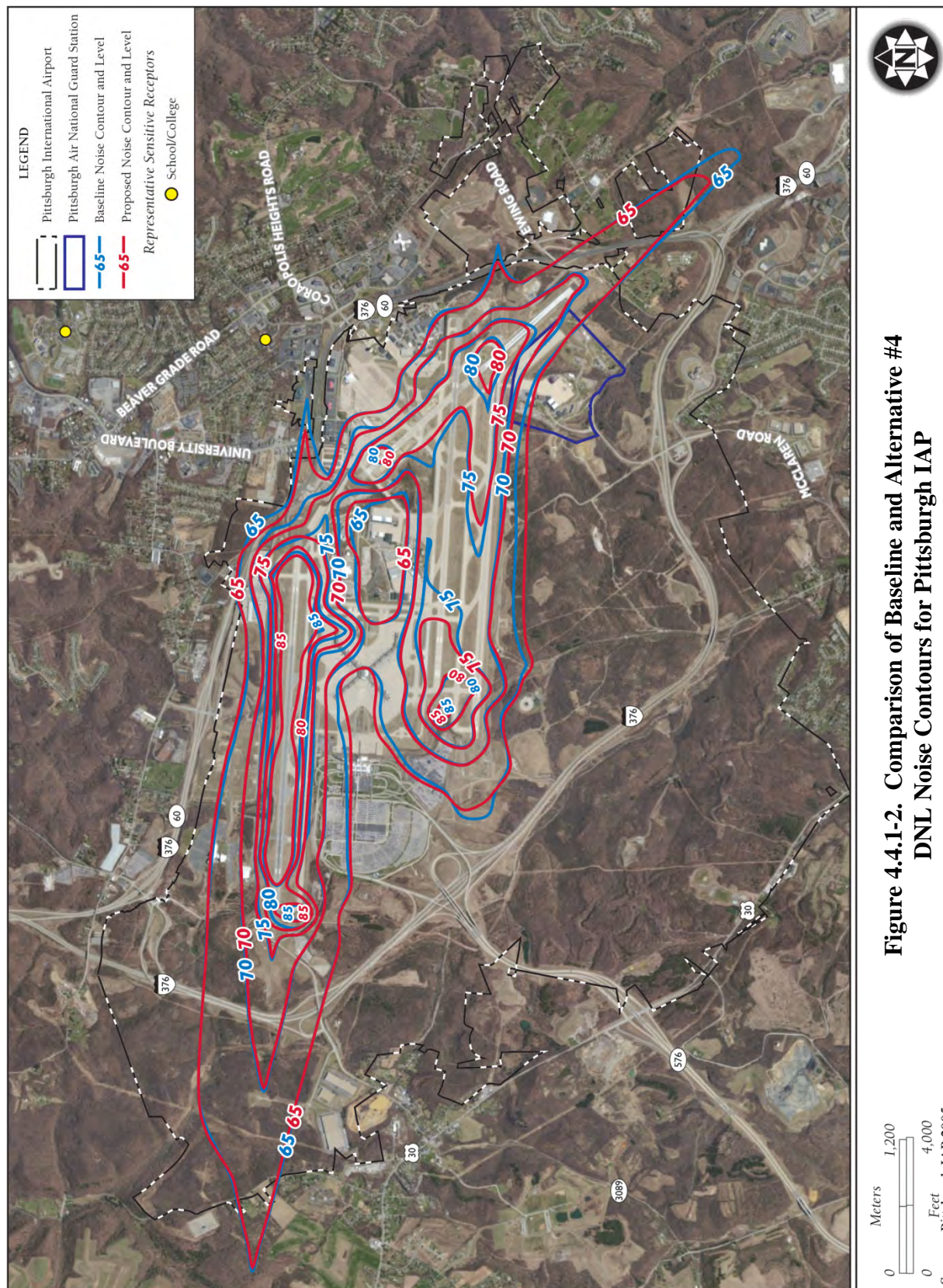
#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #4 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above a DNL of 65 dB.











### *Single Event Sound Analysis*

Under Alternative #4, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1-1 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #4, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 7 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

### *Potential Hearing Loss*

As shown in Table 4.4.1-3, there is no property off the Pittsburgh IAP that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.4.1.2 Construction Noise

There would be some minor temporary noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006) (see Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at Pittsburgh IAP dominate the local noise environment. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #4 would be negligible.

#### 4.4.1.3 Summary of Impacts

The number of 171 ARW airfield operations would decrease by 3,834 (29 percent decrease from the currently published FAR Part 150 Noise Compatibility Program; and a 2 percent increase in actual 2012 airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 88 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 106 acres off airport-controlled property that lie within the 65 dB contour. There would be no potential for hearing loss off the airport and no increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### 4.4.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 171 ARW of the PA ANG at Pittsburgh IAP, approximately 12 miles northwest of Pittsburgh, Pennsylvania. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Pittsburgh IAP were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Allegheny County is a nonattainment area for O<sub>3</sub> (moderate) and PM<sub>2.5</sub>, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, and PM<sub>2.5</sub> was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #4.

##### 4.4.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at Pittsburgh IAP include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the 2012 baseline airfield analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.4.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Pittsburgh IAP. Table 4.4.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Pittsburgh IAP. As shown in Table 4.4.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.4.2-1. Comparison of Baseline and Proposed  
Annual Operational Emissions, 171 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	3.42	50.69	67.79	6.14	0.33	0.33
AGE	0.01	0.01	0.10	0.00	0.00	0.00
Engine Tests	0.11	1.67	0.46	0.07	0.01	0.01
POVs	4.27	65.56	3.37	0.05	0.14	0.06
<b>Total</b>	<b>7.81</b>	<b>117.93</b>	<b>71.72</b>	<b>6.26</b>	<b>0.48</b>	<b>0.40</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	20.22	73.83	158.42	9.37	0.66	0.56
AGE	0.01	0.02	0.13	0.00	0.01	0.01
Engine Tests	0.80	2.75	0.74	0.09	0.01	0.01
POVs	3.44	58.54	2.52	0.05	0.14	0.06
<b>Total</b>	<b>24.48</b>	<b>135.14</b>	<b>161.81</b>	<b>9.51</b>	<b>0.81</b>	<b>0.64</b>
<b>Net Increase</b>	<b>16.67</b>	<b>17.21</b>	<b>90.09</b>	<b>3.24</b>	<b>0.33</b>	<b>0.24</b>
<b>MOB2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>2.13</b>	<b>0.15</b>	<b>1.26</b>	<b>0.52</b>	<b>0.69</b>	<b>0.60</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>250</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Pittsburgh IAP would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 tpy.

Table 4.4.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at Pittsburgh IAP, along with the net increase in comparison with the baseline. As shown in Table 4.4.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.4.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 171 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	16,909	0.47	0.53	17,082
AGE	2,370	0.07	0.08	2,395
Engine Tests	196	0.01	0.01	198
POVs	2,270	0.00	0.00	2,270
<b>Total</b>	<b>21,746</b>	<b>0.54</b>	<b>0.61</b>	<b>21,946</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	25,411	0.66	0.74	25,655
AGE	3,035	0.09	0.10	3,067
Engine Tests	243	0.01	0.01	245
POVs	2,274	0.00	0.00	2,274
<b>Total</b>	<b>30,963</b>	<b>0.75</b>	<b>0.85</b>	<b>31,242</b>
<b>Net Increase</b>	<b>9,218</b>	<b>0.21</b>	<b>0.24</b>	<b>9,296</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

*Notes:* Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.4.2.2 Construction Emissions

The KC-46A beddown at Pittsburgh IAP would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.4.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Pittsburgh IAP. As shown in Table 4.4.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.4.2-3. Annual Construction Emissions Under Alternative #4**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 - Addition to Hangar 302	1.64	2.61	0.46	0.05	2.70	2.04	871.93
Project #2 - Addition to Hangar 320	1.54	2.44	0.43	0.05	2.48	1.90	817.22
Project #3 - Internal Renovations to Hangar 301	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 - Modifications to Existing Parking Ramp and Taxiway	3.84	9.13	0.95	0.45	5.14	2.61	2,267.97
Project #5 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.02	0.03	0.01	0.00	0.00	0.00	11.06
<b>Total</b>	<b>7.33</b>	<b>14.68</b>	<b>1.91</b>	<b>0.56</b>	<b>10.37</b>	<b>6.60</b>	<b>4,090.77</b>
<b>PSD/de minimis Threshold</b>	<b>250</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.4.2.3 Summary of Impacts

The Pittsburgh ANGS is located within a non-attainment area for PM<sub>2.5</sub>, a moderate nonattainment area for the 1997 8-hour O<sub>3</sub> standard, and is classified as a marginal nonattainment area for the 2008 8-hour O<sub>3</sub> standard, according to 40 CFR 81.339. The Pittsburgh ANGS is therefore subject to *de minimis* thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.

#### 4.4.3 Safety

##### 4.4.3.1 Ground Safety

Existing facilities at Pittsburgh ANGS for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013d).

To support the aircraft beddown at Pittsburgh ANGS, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities.

Proposed renovation and infrastructure improvement projects related to Alternative #4 would not impact aircraft take-off or landings or penetrate any RPZs (Headquarters AMC and NGB 2013d).

New construction and building renovation activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at Pittsburgh IAP. For example, the KC-46A would follow established local approach and departure patterns. Therefore, flight activity and subsequent operations would not require changes to RPZs.

Under this alternative, no new facilities are proposed for Pittsburgh ANG. Planned construction at the base comprises renovation and additions to three hangars; modification to existing parking ramp and taxiway; and demolition and installation of new fuel hydrants and lines. Therefore, none of the construction or demolition would be in conflict with the current QD arcs.

No construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.4.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced; and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, Pittsburgh ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive



emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors would minimize risk associated with mishaps due to pilot error.

Under Alternative #4, there would be an increase of approximately 33 percent in 171 ARW operations (2 percent in total Pittsburgh IAP airfield operations) compared to existing conditions. This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates and with a new airframe and technological improvements, the KC-46A would be expected to have a similar safety record. Current airfield safety procedures would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (171 ARW 2010c).

Given the low likelihood of an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Pittsburgh IAP as a result of Alternative #4 are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.4.3.3 Summary of Impacts

There would be a 33 percent increase in actual 171 ARW airfield operations (2 percent increase in total airfield operations) at Pittsburgh IAP with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and

strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### **4.4.4 Soils and Water**

##### **4.4.4.1 Soils**

Under Alternative #4, new construction would consist of five separate projects resulting in 186,395 SF (4.3 acres) of new construction footprint and 88,529 SF (2.0 acres) of new impervious surface (Table 2.3-23). These proposed construction projects for aircraft conversion would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #4 would occur on Urban land-Culleoka complex. This soil type is not rated in road or small commercial building development and may require onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2013). Pursuant to the Farmland Protection Policy Act, the USAF determined that the land is not farmland subject to the Farmland Protection Policy Act; therefore, the Farmland Protection Policy Act does not apply to this alternative.

Under Alternative #4, there would be approximately 186,395 SF (4.3 acres) of temporary soil disturbance as a result of proposed construction. To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices as described in the 171 ARW SWPPP (171 ARW 2010a) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the state of Pennsylvania to obtain coverage under the General NPDES Permit for Stormwater Discharges Associated with Construction Activities (General Permit No. PAG-02) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Impacts to earth resources would be negligible.

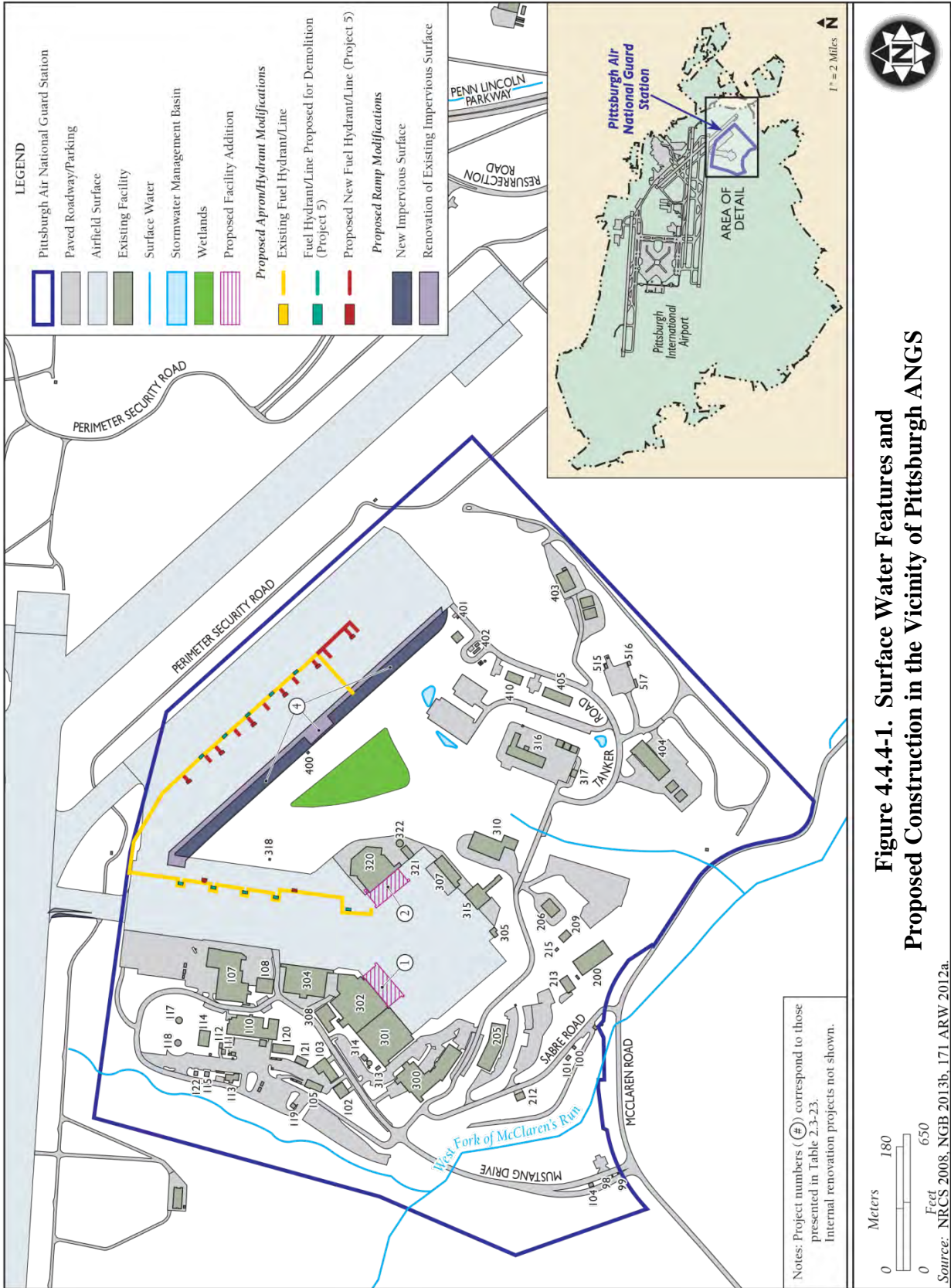
#### 4.4.4.2 Surface Water

As a result of implementation of Alternative #4, there would be approximately 88,529 SF (2.0 acres) of new impervious surface from the proposed construction (Figure 4.4.4-1). This could result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:

- water harvesting and natural open space,
- installation of retention/detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #4 would be minimal.



**Figure 4.4.4-1. Surface Water Features and Proposed Construction in the Vicinity of Pittsburgh ANG**

Source: NRCS 2008, NGB 2013b, 171 ARW 2012a.

#### 4.4.4.3 Groundwater

As a result of Alternative #4, the increase in the amount of impervious surface (2.0 acres) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices as described above and in the 171 ARW SWPPP (171 ARW 2010a). The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.4.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.4.4.5 Summary of Impacts

There would be approximately 4.3 acres of temporary soil disturbance and 2.0 acres of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### 4.4.5 Biological Resources

#### 4.4.5.1 Vegetation

Construction of new facilities associated with Alternative #4 at the 171 ARW installation would occur on currently paved areas or actively managed (i.e., mowed and landscaped) areas, and would result in an increase of 88,529 SF (2.0 acres) of impervious surfaces. No native vegetation would be impacted. Impacts to the vegetation at the installation would be negligible due to the lack of sensitive vegetation in the project area.

#### 4.4.5.2 Wildlife

Under Alternative #4, impacts to wildlife due to construction would be minor. Noise associated with construction may cause wildlife to temporarily avoid the area, including those that are protected under the MBTA. Noise associated with construction activities, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Under Alternative #4, impacts to wildlife due to proposed operations would be minor. Annual operations for the KC-46A at Pittsburgh IAP would be projected to increase by approximately 33 percent over the KC-135 baseline operations (2 percent increase in total airfield operations) found on Table 2.3-21. An increase in levels of operations (e.g., sorties) may result in an increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. Adherence to the existing, BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.4.3, *Safety*). The 171 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.4.5.3 Special Status Species

No federally threatened and endangered species are currently known to occur on Pittsburgh IAP and there is only a low potential for them to occur within the vicinity due to the lack of habitat. In a letter dated April 2, 2014, the USFWS Pennsylvania Field Office concurred that no federally listed threatened or endangered species are known to occur within the project area. One state listed species (Torrey's Rush) is currently known to occur on Pittsburgh IAP; however, it would not be impacted by the proposed construction or operations. Therefore, Alternative #4 would have no effect on special status species.

#### 4.4.5.4 Wetlands

There are no wetland areas that occur within the proposed project footprints. The wetland that occurs within the vicinity of the project areas, between the east and west aircraft parking aprons,



would not be impacted from the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices as described in the 171 ARW SWPPP (171 ARW 2010a) would be implemented during and following the construction period. Such standard construction practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. Following construction, disturbed areas not covered with impervious surface would be reestablished with appropriate vegetation and native seed mixtures and managed to minimize future erosion potential. Therefore, no significant impacts to wetlands would occur as a result of Alternative #4.

#### 4.4.5.5 Summary of Impacts

Construction of new facilities associated with this alternative would occur primarily on currently paved or actively managed areas. Therefore impacts to vegetation would be negligible. There would be no impacts to wetlands. Impacts to wildlife from operational noise would be minor due to the 33 percent increase in 171 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. No federally listed species or critical habitat and one state listed species is known to occur on Pittsburgh IAP. However, under Alternative #4 there would be no impacts to special status species.

#### 4.4.6 Cultural Resources

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,306 to 1,365 would be negligible as personnel would primarily be confined to the developed areas on the installation.

##### 4.4.6.1 Archaeological Resources

The only undisturbed portion of the 171 ARW installation in the southwest portion was intensively surveyed for archaeological resources and no NRHP-eligible archaeological resources were located. The Pennsylvania SHPO concurred with the results of this archaeological survey (171 ARW 2012b, McLearen 2011). In the unlikely event that archaeological or human remains are identified during construction, all activities in the area of the discovery would cease and the Environmental Manager would contact a qualified archaeologist to evaluate the discovery. Under these conditions, there would be no adverse impacts to archaeological resources as a result of Alternative #4.

#### 4.4.6.2 Architectural Resources

Three buildings are proposed for interior renovations or additions at the 171 ARW installation (Buildings 301, 302, and 320). None of these buildings are eligible to the NRHP. Both 301 and 302 were inventoried and evaluated for NRHP eligibility in 2011 and the SHPO concurred with the recommendation that they were not eligible for listing in the NRHP (171 ARW 2012b, MacDonald 2011). Building 320 was built in 1997 and is therefore not eligible to the NRHP because it is less than 50 years old, does not fall within the Cold War-era, and has not achieved exceptional significance (meet Criterion Consideration G) for any other reason. SHPO consultation for this EIS has provided concurrence that the proposed project has no potential to adversely affect historic properties (see Appendix B3). There would be no adverse impacts to architectural resources as a result of implementation of Alternative #4.

#### 4.4.6.3 Traditional Resources

The 171 ARW installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the 171 ARW. Government-to-government consultation for this action has been conducted with each federally-recognized Tribe associated with the 171 ARW installation in recognition of their status as sovereign nations and in order to provide information regarding tribal concerns per Section 106 of the NRHP as well as information on traditional resources that may be present on or near the installation. Responses have been received from all the Tribes under consultation. On October 3, 2013 an e-mail from the Seneca Nation of Indians was received stating that they had no objection to the Proposed Action (see Toth 2013 in Appendix B2). On January 13, 2014, an e-mail from the Cayuga Nation of New York was received stating that they had no objection to the Proposed Action (see Halftown 2014 in Appendix B2). On January 17, 2014, the Onondaga Nation of New York stated that they had no objection to the Proposed Action via telephone call. On April 4, 2014, the Tonowanda Band of Seneca stated that they had no objection to the Proposed Action via telephone call. In a letter dated April 14, 2014, the Tuscarora Nation stated that they concur that the proposed project will have no effect on predetermined archaeological sites within the Area of Potential Effect. The NGB and the USAF values its relationship with tribes and will continue to seek opportunities to consult on other planning efforts or matters of known/potential interest to tribes.

#### 4.4.6.4 Summary of Impacts

Construction activities associated with this alternative are limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. Additionally, all undisturbed parts of the installation have been surveyed and no resources were present; the SHPO has concurred (McLearen 2011). The area is also considered to have a low potential for buried archaeological materials. None of the

buildings that would be impacted under the Proposed Action are eligible to the NRHP. The SHPO has concurred with this determination for Buildings 301 and 302 (MacDonald 2011). Building 320 is modern and does not meet any of the NRHP criteria for significance. No traditional resources are known to occur at the installation. Therefore, no impacts to cultural resources are anticipated at the 171 ARW installation under Alternative #4.

#### 4.4.7 Land Use

The primary source of impacts to land use resulting from Alternative #4 would be from noise. As shown in Table 4.4.7-1 and Figure 4.4.7-1, areas outside of the airport boundaries currently exposed to DNLs of 65 dB to 70 dB would decrease by approximately 23 acres, overall. By zoning districts, the Commercial area affected by DNL of 65 dB to 70 dB would decrease by approximately 27 acres; Mixed Use areas would increase by approximately 2 acres; Industrial areas would increase by approximately 3 acres; and Residential and Agricultural areas would remain approximately the same. There would be no change in the areas affected by DNL of 70 dB or greater. No additional houses, churches, schools or other sensitive noise receptors are located within the 65 dB DNL off-airport noise contour areas.

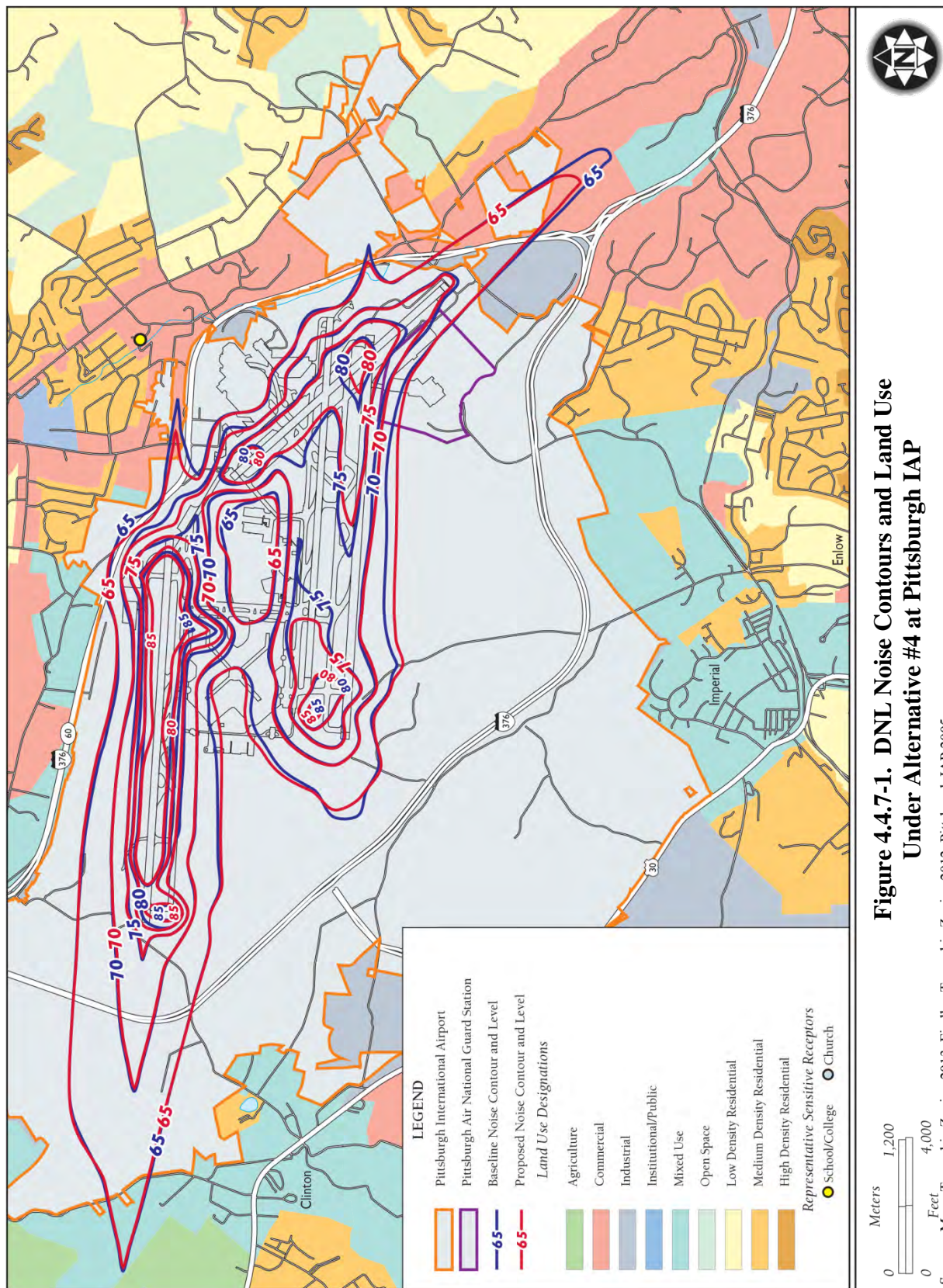
**Table 4.4.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Pittsburgh IAP Boundary**

Land Use	65 dB to 70 dB DNL			70 dB DNL +			65 dB to 80 dB DNL
	Baseline	Proposed	Change	Baseline	Proposed	Change	Change
Commercial	67.5	40.4	-27.1	-	-	-	-27.1
Mixed Use	25.1	27.4	2.3	-	-	-	2.3
Industrial	33.1	35.6	2.5	-	-	-	2.5
Residential	2.9	2.5	-0.4	-	-	-	-0.4
Agricultural	-	-	-	-	-	-	-
<b>Total Area</b>	<b>128.6</b>	<b>105.9</b>	<b>-22.7</b>	-	-	-	<b>-22.7</b>

A more detailed discussion of aircraft operations and noise can be found in Section 4.4.1, *Noise*.

##### 4.4.7.1 Summary of Impacts

The number of airfield operations would decrease by 3,834 (29 percent decrease) from the currently published FAR Part 150 Noise Compatibility Program, and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to noise levels above 65 dB DNL. Airport Hazard Areas would not be affected.



#### **4.4.8 Infrastructure and Transportation**

##### **4.4.8.1 Potable Water**

Water consumption would be expected to increase slightly under Alternative #4 as a result of the increase in personnel; however, an increase in 23 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact the regional water supply.

##### **4.4.8.2 Wastewater**

Wastewater generation would be expected to increase slightly as a result of the increase in 23 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

##### **4.4.8.3 Stormwater**

Under Alternative #4, there would be up to 186,395 SF (4.3 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.4.4, *Soils and Water*); however, through implementation of appropriate standard construction practices, preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 88,529 SF (2.0 acres) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.4.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #4 would be minimal.

##### **4.4.8.4 Electrical and Natural Gas Systems**

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require



additional electricity. However, any new facilities and additions associated with this alternative would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #4 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.4.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 186,395 SF of additions and alterations to existing facilities and 88,529 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Pittsburgh ANGTS would generate 2,197,597 pounds (1,099 tons) of renovation debris requiring landfill disposal and proposed new construction at Pittsburgh ANGTS would generate 384,216 pounds (192 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at Pittsburgh ANGTS would be 1,291 tons.

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. It is unknown what landfill would be used for construction debris since the construction contractor would choose the landfill. However, the Allied Waste Imperial Landfill, which is the closest to the installation, has a permitted throughput of 649,800 tons per year (Allegheny County 2009). The 1,291 tons of proposed construction debris generated at Pittsburgh ANGTS would represent 0.2 percent of the yearly capacity of the landfill. Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 171 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can



be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.4.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 23 under Alternative #4 (see Table 2.3-24). The increase in personnel would create a potential 23 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #4 would add an additional 46 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this minimal increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #4.

#### 4.4.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

#### **4.4.9 Hazardous Materials and Waste**

##### **4.4.9.1 Hazardous Materials**

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #4.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #4, the total number of flying hours would increase from 6,016 to 8,040 (a 34 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth-moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 171 ARW installation would continue to be followed in future operations associated with Alternative #4 and as required during all construction and renovation activities.

##### *Toxic Substances*

Under Alternative #4, additions to Hangars 302 and 320 are proposed, and internal renovations to Hangar 301 are proposed. According to the 1991 asbestos report, Hangars 301 and 302 were found to contain ACM in the insulation, floor tiles, and mastic. A LBP survey has not been conducted at the 171 ARW installation. However, Buildings 301 and 302 were built before 1978 and therefore may contain LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any

renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, Pennsylvania requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Removal and disposal of ACM and LBP may also require local permits and inspections (depending on volume or area being removed/renovated) through the Allegheny County Health Department. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.4.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #4, the total number of flying hours for the 171 ARW would increase by approximately 34 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. No changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.4.9.3 Environmental Restoration Program

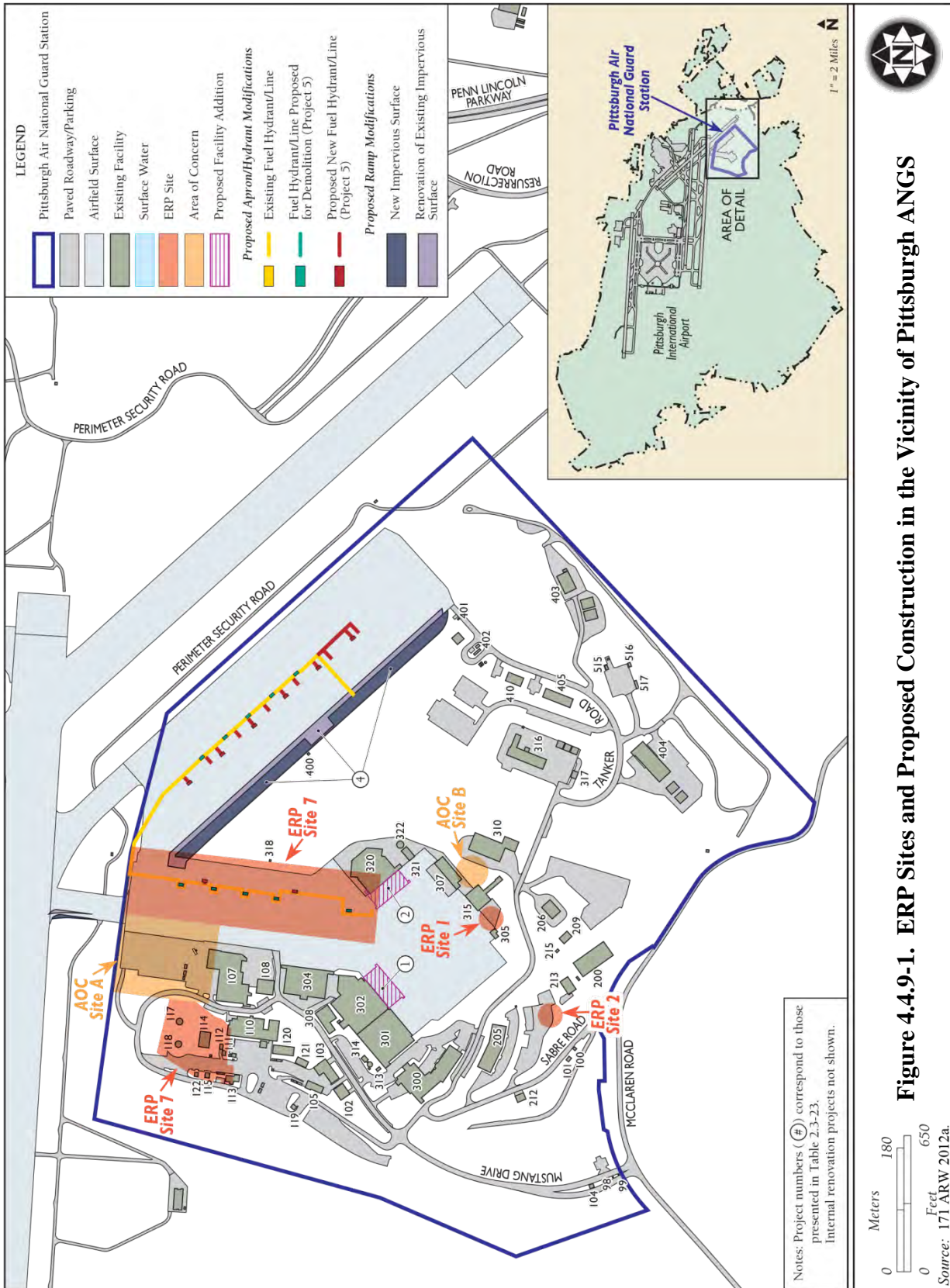
In accordance with AFI32-7020, The Environmental Restoration Program, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the

CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One ERP site, Site #7 overlaps with the proposed addition to Hangar 320 as well as the proposed apron expansion (Figure 4.4.9-1). This site is closed and was a POL storage area and fuel hydrant system for JP-4 fuel. Soil and groundwater sampling performed at this site did not reveal contaminants of concern above PADEP guidelines; therefore, it is not expected to pose a vapor intrusion concern. However, it is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.



If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 171 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

Alternative #4 would not result in an increased risk of hazardous waste releases or exposure, nor would it affect the criteria listed in Appendix A, Section A.9. Therefore, no significant impacts from hazardous materials and wastes would occur with the implementation of Alternative #4.

#### 4.4.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.

#### 4.4.10 Socioeconomics

Under Alternative #4, construction activities would be contained entirely within the boundaries of Pittsburgh IAP. Economic activity associated with proposed construction activities at the 171 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a minor change in staffing requirements for the 171 ARW. Currently, the 171 ARW is authorized 1,306 personnel. Under Alternative #4, the KC-46A mission would add an additional 59 military positions (increase in 235 full-time positions and reduction of 176 traditional Guard positions) (see Table 2.3-24). Combined with their approximately 80 family members, this would represent less than 0.01 percent of Allegheny County population. Of the 80 family members, approximately 28 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Allegheny County. It is anticipated



that there is enough capacity within the schools in this county to absorb this minimal increase in school age children.

A net increase in 59 military personnel positions would amount to an increase of approximately 4.5 percent to the existing 171 ARW personnel. Total payroll associated with the 235 additional full-time personnel would amount to an estimated total annual salary increase of approximately \$12 million for full-time employees. However, a portion of this (approximately \$4 million) would be offset by the loss of 176 part-time guardsmen.

All 171 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 80 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.01 percent of the total housing units in the Allegheny County. However, not all the military personnel who would relocate would own homes, and some personnel may choose to live in other neighboring counties or states.

#### **4.4.10.1 Summary of Impacts**

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

### **4.4.11 Environmental Justice and the Protection of Children**

#### **4.4.11.1 Minority and Low-Income Populations**

As presented in Table 4.4.11-1, of the roughly 12 persons (same as baseline) that would be affected by proposed DNL between 65 dB and 70 dB, none are considered to be minorities, or low-income populations. No additional minorities or low-income populations would be impacted by aircraft DNL greater 65 dB under Alternative #4. Therefore, there would be no impacts to minority or low-income populations in the vicinity of Pittsburgh IAP and there would be no disproportionate impacts to minority or low-income populations.

**Table 4.4.11-1. Population within Alternative #4 Noise Contours,  
Pittsburgh IAP<sup>1</sup>**

<i>Noise Contour</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>
65-70	12	0	0	0	0
70-75	0	0	0	0	0
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.  
2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Sources:* USCB 2010f and 2011f.

#### 4.4.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there are no Kindergarten through Grade 12 off-installation schools that are exposed to aircraft DNL between 65 dB and 70 dB. Under Alternative #4 there would be no new Kindergarten through Grade 12 schools exposed to aircraft DNL of 65 dB or above. Therefore, under Alternative #4 there would be no special health or safety risks to children.

#### 4.4.11.3 Summary of Impacts

Given that the acreage within the 65 dB DNL noise contour would be reduced under Alternative #4, there would be no additional residential populations, including no minority or low-income populations, and no additional schools located within the vicinity Pittsburgh IAP exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Pittsburgh IAP. In addition, there would be no special health or safety risks to children.

## **4.5           ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION**

### **4.5.1       Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #5 are considered and compared with current conditions associated with the most current approved and published baseline noise study to assess potential impacts. Details of the noise modeling methodologies used for this section can be found Appendix A, Section A.1.2.

Actual 2012 KC-135 airfield operations were identified in Table 2.3-25. This data was used in determining the proposed KC-46A airfield operations based on most current home-station sorties and airfield operations to provide a more accurate determination of the number of airfield operations for Alternative #5. Under this analysis, the proposed airfield operations are compared to the most current approved and published 2007 FAR Part 150 Noise Compatibility Program for Rickenbacker IAP.

The DNL noise contours for the KC-46A under Alternative #5 were generated using INM. Based KC-135 operations were removed and replaced with KC-46A operations using the B-767-300 and the standard flight profile data provided with INM as substitute data and applying the data to the current based KC-135 flight tracks and operational procedures (INM does not have a standard profile or noise curve data for the KC-46A). Using the standard flight profile data provided for this substitute aircraft in INM provides an accurate analysis of noise contour comparisons that would be expected with the new KC-46A. Flight profiles, flight tracks, and operational procedures currently being used by the KC-135 were used in this INM program.

#### **4.5.1.1     Aircraft Noise**

Under Alternative #5, 12 KC-46As would be based at Rickenbacker ANGS replacing the current 18 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield. KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135; however, most tactical procedures would be accomplished in the simulator and at the other locations away from Rickenbacker IAP.

Using the current published and approved baseline noise contours from the Rickenbacker IAP FAR Part 150 Noise Compatibility Program Update and INM data, there would be a decrease in the overall number of airfield operations with the proposed KC-46A for comparison (Table 4.5.1-1).

Under Alternative #5, the 121 ARW KC-46A aircraft would fly a total of 8,040 hours, resulting in 2,010 annual sorties of which it is expected that up to 1,286 sorties would be flown at Rickenbacker ANG. Baseline conditions for the KC-135 are represented here as the same number of 121 ARW airfield operations published in the August 2007 Rickenbacker IAP FAR Part 150 study (CRAA 2007). Based on 1,286 annual home-station sorties with an average of 5.33 operations per sortie, there would be 6,857 annual home-station operations, or a reduction of 6,283 airfield operations annually at Rickenbacker IAP. This would decrease the average daily airfield operations from approximately 36 to 25 as shown in Table 4.5.1-1. The 121 ARW KC-46A operations would be approximately 11 percent of all aircraft operations at the airfield under the current approved FAR Part 150 Noise Compatibility Update.

**Table 4.5.1-1. Changes to Rickenbacker IAP Airfield Operations with Proposed KC-46A Based on FAR Part 150 Baseline**

<i>Unit</i>	<i>Total Based KC-135 (Average Daily Airfield Operations)</i>	<i>Total Based KC-46A (Average Daily Airfield Operations)</i>	<i>Change in Airfield Operations Annually for Proposed KC-46A Operations (% Change)</i>
121 ARW	13,140 <sup>1</sup> (35.8)	6,857 (25.3)	-6,283 (-47.8%)

Note: 1. Operations based on currently approved FAR Part 150.

Table 4.5.1-2 provides details on the total airfield operations for Rickenbacker IAP under Alternative #5 using the current FAR Part 150 as the baseline operations. There would be a 9.4 percent decrease in the overall airfield operations from the current baseline operations. There would be approximately 4 percent of KC-46A airfield operations flown during environmental night. The total number of operations flown by all other aircraft at Rickenbacker IAP would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

**Table 4.5.1-2. Rickenbacker ANG Aircraft Operations with Proposed KC-46A**

<i>Aircraft</i>	<i>DEPARTURES</i>		<i>ARRIVALS</i>		<i>TOTAL<sup>1</sup></i>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	3,428	0	3,153	276	6,581	276	6,857
Other Aircraft <sup>3,4</sup>	13,870	13,140	13,505	13,505	27,375	26,645	54,020
<b>Total</b>	<b>17,298</b>	<b>13,140</b>	<b>16,658</b>	<b>13,781</b>	<b>33,956</b>	<b>26,921</b>	<b>60,877</b>

- Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other Based aircraft and Transient Aircraft (multiple type aircraft) including: Boeing 737, 747, and Airbus 300.  
 4. Operations based on currently approved FAR Part 150.

Figure 4.5.1-1 depicts Alternative #5 noise exposure area from aircraft operations after the conversion from the current 18 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.5.1-2 compares baseline noise contours with Alternative #5 contours. The aircraft operations modeled include all current based and transient aircraft as depicted in the 2007 FAR Part 150 Noise Compatibility Noise Update. Table 4.5.1-3 shows changes to the acreage of land within each noise contour under Alternative #5.

**Table 4.5.1-3. Land Areas within DNL Contours at Rickenbacker IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #5**

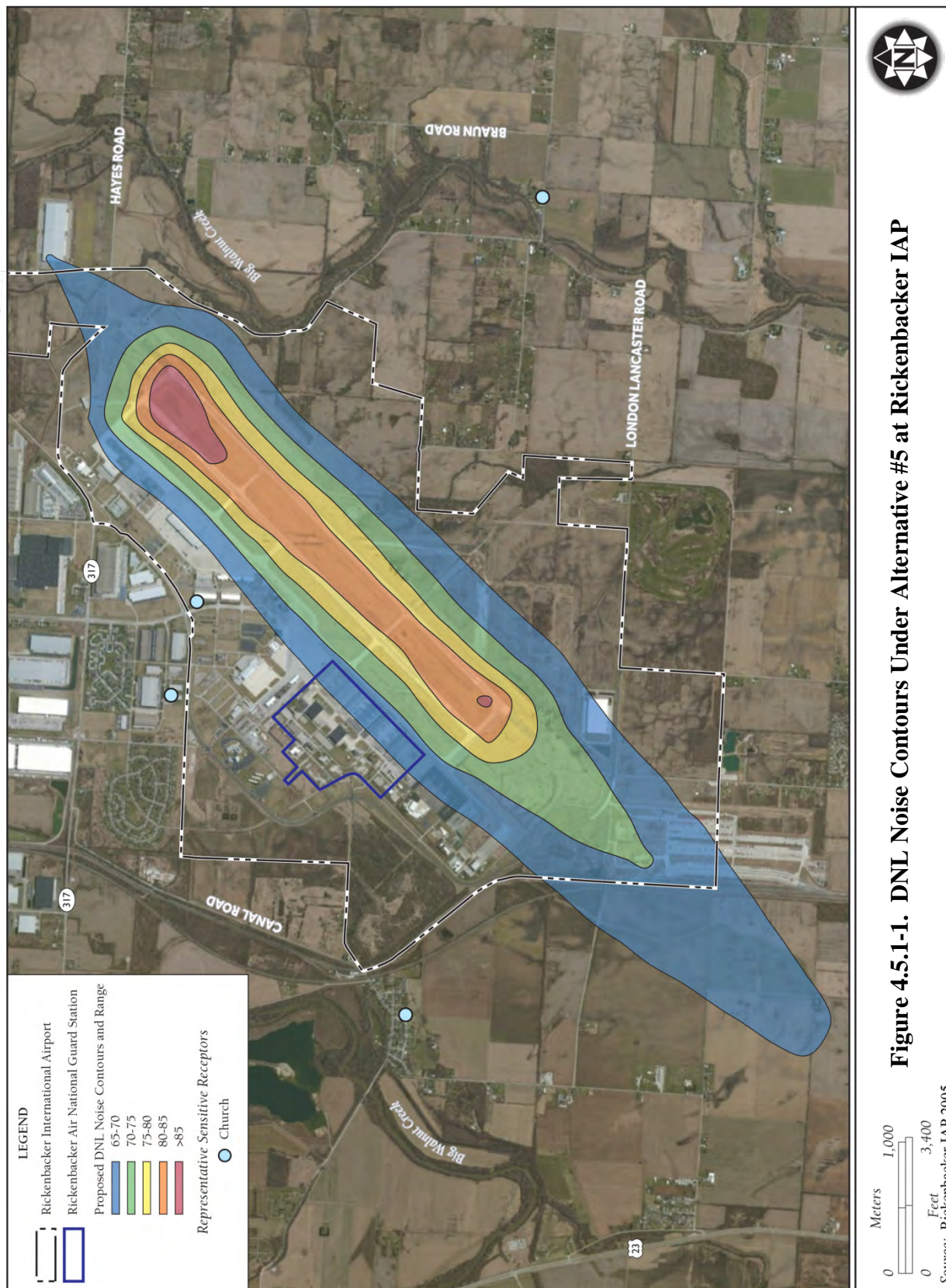
Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #5 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	811	417	1,228	799	345	1,144	-84
70-75	478	0	478	495	0	495	17
75-80	156	0	156	276	0	276	120
80-85	265	0	265	288	0	288	23
>85	232	0	232	57	0	57	-175
<b>Total</b>	<b>1,942</b>	<b>417</b>	<b>2,359</b>	<b>1,915</b>	<b>345</b>	<b>2,260</b>	<b>-99</b>

Notes: DNL = Day Night Average Sound Level; dB = decibel

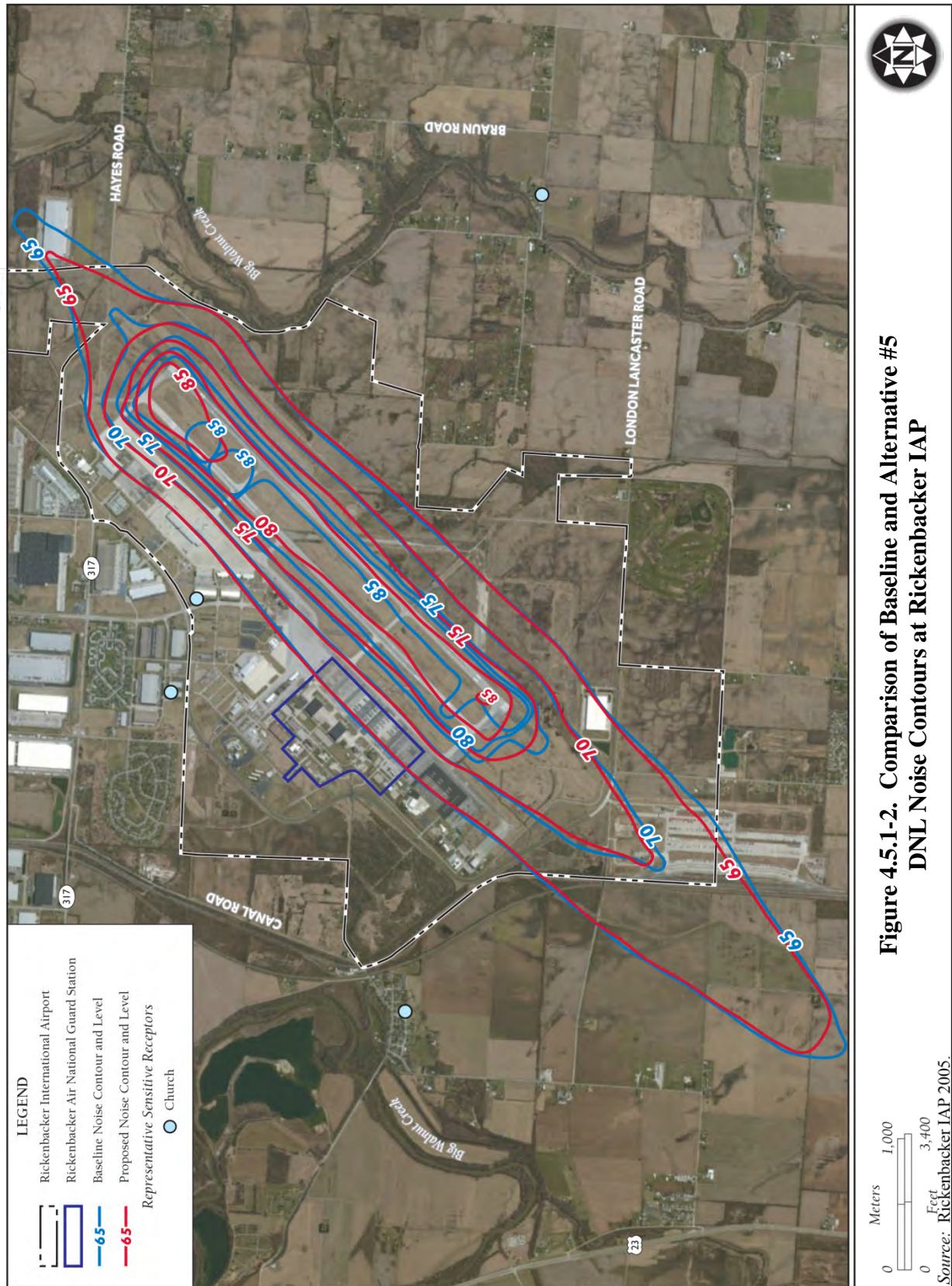
Under Alternative #5, the DNL noise contours would decrease slightly from the DNL baseline contours. The reduction is the result of fewer KC-46A airfield operations and because the KC-46A is generally a quieter aircraft (5 dB quieter on landing and 1 dB louder on take-off) than the KC-135.

Overall, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 99 acres, or 4 percent, and would remain primarily on airport property with approximately 345 of the acres off the airport property under Alternative #5. Information regarding the number of people residing in this area can be found in Section 4.5.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.5.7, *Land Use*.









### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #5 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above 65 dB DNL.

### *Single Event Sound Analysis*

Under Alternative #5, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #5, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

### *Potential Hearing Loss*

As shown in Table 4.5.1-3, there is no property off the Rickenbacker IAP that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.5.1.2 Construction Noise

There would be some minor noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006). Aviation-related activities at Rickenbacker IAP dominate the local noise environment for brief times on some days. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #5 would be negligible.

#### 4.5.1.3 Summary of Impacts

The number of 121 ARW airfield operations would decrease by 6,283 (48 percent decrease from the currently published FAR Part 150 Noise Compatibility Program; and a 1 percent increase in actual 2012 airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres. There would be a decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-

controlled property that lie within the 65 dB DNL contour. There would be no potential for hearing loss off the airport and no increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### **4.5.2 Air Quality**

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 121 ARW. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Rickenbacker IAP were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Franklin County is a nonattainment area for O<sub>3</sub> (marginal) and PM<sub>2.5</sub>, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, and PM<sub>2.5</sub>, was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #5.

##### **4.5.2.1 Operational Emissions**

Sources associated with operation of the proposed KC-46A beddown at Rickenbacker IAP include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were

estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.5.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Rickenbacker IAP. Table 4.5.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Rickenbacker IAP. As shown in Table 4.5.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.5.2-1. Comparison of Baseline and Proposed  
Annual Operational Emissions, 121 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	4.63	68.57	64.35	6.38	0.34	0.34
AGE	0.01	0.02	0.15	0.00	0.01	0.01
Engine Tests	0.11	1.55	0.43	0.07	0.01	0.01
POVs	4.55	67.35	3.55	0.05	0.15	0.07
<b>Total</b>	<b>9.29</b>	<b>137.50</b>	<b>68.48</b>	<b>6.50</b>	<b>0.51</b>	<b>0.42</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	21.73	77.82	123.58	7.78	0.57	0.49
AGE	0.01	0.02	0.15	0.00	0.01	0.01
Engine Tests	0.59	2.03	0.54	0.07	0.01	0.01
POVs	4.09	60.59	2.68	0.05	0.15	0.07
<b>Total</b>	<b>26.43</b>	<b>140.46</b>	<b>126.95</b>	<b>7.90</b>	<b>0.73</b>	<b>0.55</b>
<b>Net Increase</b>	<b>17.13</b>	<b>2.96</b>	<b>58.47</b>	<b>1.40</b>	<b>0.23</b>	<b>0.15</b>
<b>MOB2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>1.84</b>	<b>0.02</b>	<b>0.85</b>	<b>0.22</b>	<b>0.45</b>	<b>0.36</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>250</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Rickenbacker IAP would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 ton per year.

Table 4.5.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at Rickenbacker IAP, along with the net increase in comparison with the baseline. As shown in Table 4.5.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.5.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 121 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	17,562	0.49	0.55	17,742
AGE	3,298	0.09	0.11	3,333
Engine Tests	183	0.01	0.01	185
POVs	2,407	0.00	0.00	2,407
<b>Total</b>	<b>23,451</b>	<b>0.58</b>	<b>0.66</b>	<b>23,667</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	21,009	0.53	0.60	21,206
AGE	3,291	0.09	0.11	3,326
Engine Tests	180	0.00	0.01	182
POVs	2,430	0.00	0.00	2,430
<b>Total</b>	<b>26,909</b>	<b>0.63</b>	<b>0.71</b>	<b>27,143</b>
<b>Net Increase</b>	<b>3,458</b>	<b>0.05</b>	<b>0.05</b>	<b>3,476</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.5.2.2 Construction Emissions

The KC-46A beddown at Rickenbacker IAP would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.5.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Rickenbacker IAP. As shown in Table 4.5.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants.



**Table 4.5.2-3. Annual Construction Emissions Under Alternative #5**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 - Addition and Modifications to Hangar 885	0.32	0.51	0.09	0.01	0.40	0.37	170.43
Project #2 - Addition to Hangar 883	1.39	2.20	0.39	0.04	2.17	1.70	736.69
Project #3 - Internal Renovations to Hangar 888	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 - Modifications to Existing Parking Ramp and Taxiway	9.07	21.55	2.25	1.07	22.37	8.31	5,355.66
Project #5 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.05	0.08	0.01	0.00	0.02	0.01	27.82
<b>Total</b>	<b>11.12</b>	<b>24.82</b>	<b>2.80</b>	<b>1.13</b>	<b>25.00</b>	<b>10.43</b>	<b>6,413.19</b>
<b>PSD/de minimis Threshold</b>	<b>250</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.5.2.3 Summary of Impacts

The Rickenbacker ANGS is located in an area of nonattainment for the O<sub>3</sub> and PM<sub>2.5</sub> NAAQS. While there are increases in operational criteria pollutant emissions, they are below the PSD/*de minimis* thresholds for all pollutants and are not significant. Operational GHG emissions are within thresholds in the PSD tailoring rule. Impacts from construction emissions and operational HAP emissions are negligible.

### 4.5.3 Safety

#### 4.5.3.1 Ground Safety

Existing facilities at Rickenbacker IAP for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013b).

Providing new and renovated facilities for the 121 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 121 ARW.

Proposed renovation and infrastructure improvement projects related to Alternative #5 would not impact aircraft take-off or landings or penetrate any RPZs. New construction is not proposed, only existing building renovation; therefore, construction activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as



those that have historically occurred at Rickenbacker IAP. For example, the KC-46A would follow established local approach and departure patterns used. Therefore, flight activity and subsequent operations would not require changes to RPZs.

To support the aircraft beddown at Rickenbacker ANG, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

At present, Rickenbacker ANG has no QD arcs and no plans to store munitions at the installation are proposed.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.5.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, Rickenbacker ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #5, there would be an increase of approximately 6 percent in 121 ARW annual operations (1 percent in total Rickenbacker IAP airfield operations) compared to existing conditions. This negligible increase in take-offs, landings, proficiency training, and other flights would not result in a measurable change in the safety risk to aircrews and personnel.

The proposed change in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures.

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Rickenbacker IAP as a result of the Proposed Action are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.5.3.3 Summary of Impacts

There would be a 6 percent increase in actual 121 ARW airfield operations (1 percent increase in total airfield operations) at Rickenbacker IAP with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### **4.5.4 Soils and Water**

##### **4.5.4.1 Soils**

Under Alternative #5, new construction would consist of five separate projects resulting in 368,330 SF (8.5 acres) of new construction footprint and 14,660 SF (0.3 acre) of new impervious surface (Table 2.3-29). These proposed construction projects for aircraft conversion would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #5 would occur primarily on Crosby-Urban land complex (0 to 2 percent slopes), with a small amount of the new construction footprint on Kokomo-Urban land complex. Crosby-Urban land complex is not rated in road or small commercial building development and may require onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2013). There is no proposed construction on any farmland; therefore, the Farmland Protection Policy Act does not apply to Alternative #5.

Under Alternative #5, there would be approximately 368,330 SF (8.5 acres) of temporary soil disturbance as a result of the proposed construction. To minimize potential impacts to soil and water resources associated with erosion, runoff, sedimentation during construction activity, and standard construction practices as described in the 121 ARW SWPPP (121 ARW 2009) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate.

A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the state of Ohio to obtain coverage under the Storm Water Discharge from Small and Large Construction Activities (General Permit No. OH000004) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #5 would be minimal.

##### **4.5.4.2 Surface Water**

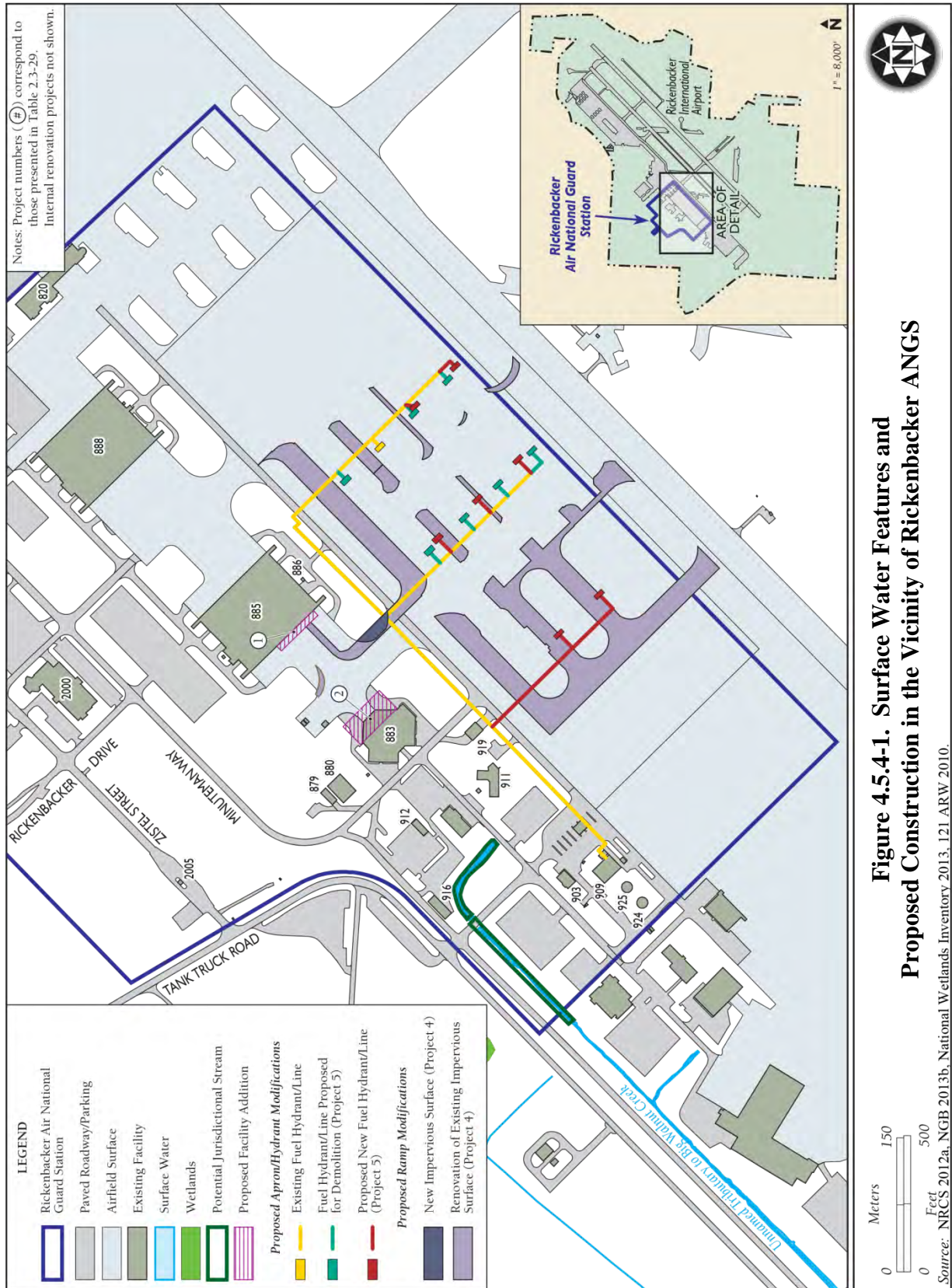
As a result of implementation of Alternative #5, there would be approximately 14,660 SF (0.3 acre) of new impervious surface from the proposed construction (Figure 4.5.4-1). This could

result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:

- water harvesting and natural open space,
- installation of retention/detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #5 would be minimal.



#### 4.5.4.3 Groundwater

As a result of Alternative #5, the increase in the amount of impervious surface (0.3 acre) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices as described in the 121 ARW SWPPP (121 ARW 2009). The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.5.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.5.4.5 Summary of Impacts

There would be approximately 8.5 acres of temporary soil disturbance and 0.3 acre of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### 4.5.5 Biological Resources

#### 4.5.5.1 Vegetation

Construction of new facilities associated with Alternative #5 at the 121 ARW installation would occur on currently paved areas or actively managed (i.e., mowed and landscaped) areas, and would result in an increase of 14,660 SF (0.3 acre) of impervious surfaces. No native vegetation would be impacted. Impacts to the vegetation at the installation would be negligible due to the lack of sensitive vegetation in the project area.



#### 4.5.5.2 Wildlife

Under Alternative #5, impacts to wildlife due to construction would be minor. Noise associated with construction may also cause wildlife to temporarily avoid the area, including those that are protected under the MBTA and may cause them to temporarily leave the area. Noise associated with excavating, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction such as dust and noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Under Alternative #5, impacts to wildlife due to noise from proposed operations would be minor. Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #5, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the KC-46A at Rickenbacker IAP would be projected to increase slightly by approximately 6 percent from the 2012 baseline operations (1 percent increase in total airfield operations) found in Table 2.3-27. This negligible increase in levels of operations (e.g., sorties) may result in a negligible increase in opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing, BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.5.3, *Safety*). The 121 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.5.5.3 Special Status Species

No federally threatened and endangered species are known to occur on Rickenbacker IAP, and there is only a low potential for them to occur due to lack of habitat. Therefore, there would be no effect on federally listed species. In an email dated April 7, 2014, the USFWS has concurred with this determination (see Appendix B, Section B6). Only one state listed species, the Northern Harrier, is currently known to occur on Rickenbacker IAP, and there is only low potential for others to occur due to lack of habitat. Impacts to the Northern Harrier would be similar to those

impacts described under wildlife. Indirect impacts to the Northern Harrier from construction such as dust and noise are expected to be minimal because the ambient noise levels within the vicinity are relatively high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications. In addition, noise from proposed operations would be minor as total airfield operations are projected to increase slightly by approximately 1 percent from baseline. This negligible increase in levels of operations (e.g., sorties) may result in a negligible increase in opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. However, adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.5.3, *Safety*). Impacts due to construction noise and from proposed operations would be minor.

#### 4.5.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #5.

#### 4.5.5.5 Summary of Impacts

Construction of new facilities associated with this alternative would occur primarily on currently paved or actively managed areas. Therefore impacts to vegetation would be negligible. There would be no impacts to wetlands. Impacts to wildlife and sensitive species from operational noise would be minor due to the 6 percent increase in 121 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. Impacts to state listed species would be minor. No federally listed species or critical habitat is known to occur on Rickenbacker IAP, therefore there would be no impacts to federally listed species.

### 4.5.6 Cultural Resources

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,497 to 1,694 would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

#### 4.5.6.1 Archaeological Resources

There is one significant archaeological resource located at the 121 ARW at Rickenbacker IAP. This is a multi-component site that is considered eligible to the NRHP. The ground disturbing

activities associated with this alternative would not occur near the archaeological resource and therefore, there would be no impacts to the site. In the unlikely event that archaeological or human remains are identified during construction, all activities in the area of the discovery would cease and the Environmental Manager would contact a qualified archaeologist to evaluate the discovery. Under these conditions, there would be no impact to archaeological resources under Alternative #5.

#### 4.5.6.2 Architectural Resources

Two of the hangars (885 and 888) proposed for additions, modifications, and renovations are eligible to the NRHP. The Ohio SHPO concurred with this eligibility determination (121 ARW 2011d). Hangar 885 would have an addition and renovations inside to house the new aircraft and support facilities. Because these renovations would alter the exterior appearance of a structure that is considered eligible because of its design, the construction would have an adverse effect on a historic property. Modification to Hangar 888 would all be interior; however, they could have an adverse effect to this NRHP-eligible resource. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, further consultation would be conducted to minimize and mitigate adverse effects to these buildings (see Appendix B, Section B3). The third hangar with proposed changes (additions) under this alternative is Hangar 883. This structure has not been inventoried; however, it was constructed in 2000 and is therefore less than 50 years old, is not a Cold War-era resource, and is not exceptionally significant (eligible to the NRHP under Criterion Consideration G). For these reasons, it is not eligible for listing in the NRHP. The SHPO has concurred with this determination and agrees that no adverse effects to this structure would result from the proposed action.

#### 4.5.6.3 Traditional Resources

No traditional resources have been identified at the 121 ARW installation and the highly developed nature of the installation makes it unlikely to contain any such resources. Government-to-government consultation for this action has been conducted with each federally-recognized Tribe associated with the 121 ARW installation in recognition of their status as sovereign nations, to provide information regarding tribal concerns per Section 106 of the NRHP as well as information on traditional resources that may be present on or near the installation. Five responses have been received. The Peoria Tribe of Indians of Oklahoma has sent a response stating that according to their reviews no traditional resources exist on the 121 ARW installation (see Appendix B2 and Stacy 2013). On January 17, 2014, the Shawnee Tribe stated that they had no objection to the Proposed Action via telephone call. On January 22, 2014 the Turtle Mountain Band of Chippewa Indians of North Dakota stated that they had no objection to the Proposed Action via telephone call. On February 4, 2014, the Pokagon Band of Potawatomi

Indians stated that they had no objection to the Proposed Action via telephone call. The Delaware Nation stated via telephone on April 3, 2014 that they had no objection to the Proposed Action. Letters and written correspondence to Tribes were followed up with telephone calls and emails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Correspondence sent to the tribes and follow-up efforts are located in Appendix B2. Additional efforts were made to contact non-responsive tribes without success (see Appendix B2). While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Rickenbacker ANG is now complete.

#### 4.5.6.4 Summary of Impacts

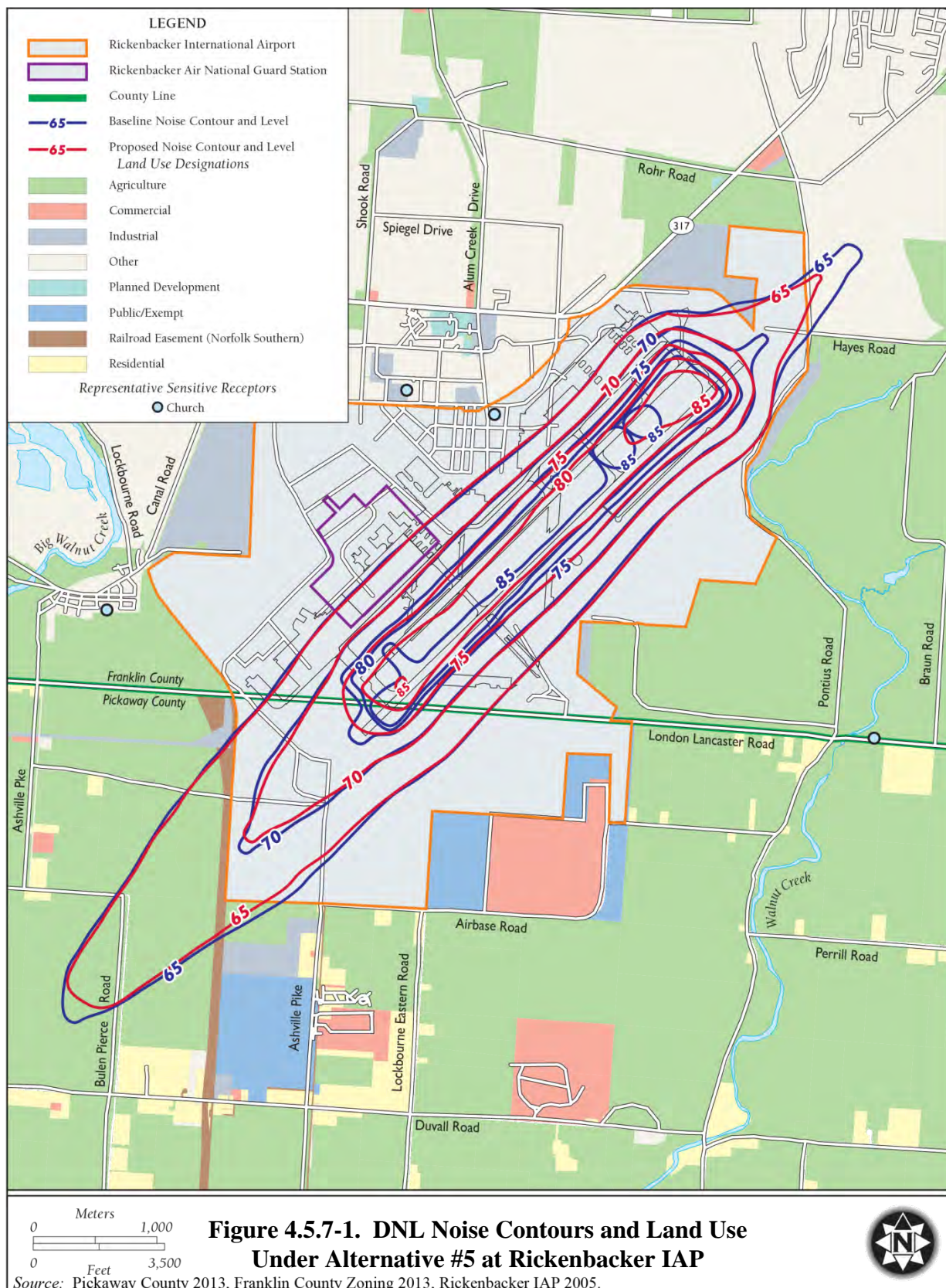
Construction activities at Rickenbacker ANG is would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. Additionally, the installation has been surveyed for archaeological resources and no NRHP-eligible resources were discovered. The Ohio SHPO has concurred with the findings of the archaeological survey (Snyder 2007). One significant archaeological resource was recorded prior to the 2007 installation-wide survey. This site is not within the proposed construction areas and would not be impacted by the Proposed Action. Two NRHP-eligible hangars (883 and 885) could be adversely impacted by construction under this alternative. Rickenbacker ANG is and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, further consultation would be conducted to minimize and mitigate adverse effects to these buildings. Therefore, with completion of Section 106 consultation, no adverse impacts are anticipated to cultural resources at the 121 ARW installation under Alternative #5.

#### 4.5.7 Land Use

The primary source of impacts to land use resulting from Alternative #5 would be from noise. As shown in Table 4.5.7-1 and Figure 4.5.7-1, areas outside of the airport boundaries currently exposed to DNLs of 65 dB to 70 dB would decrease by 72 acres, overall. By zoning districts, Industrial areas affected by DNL of 65 dB to 70 dB would decrease by approximately 2 acres, Public and Utility areas would decrease slightly (less than 1 acre each), Agricultural areas would decrease by approximately 36 acres, and non-designated lands would decrease by approximately 33 acres. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB DNL off-airport noise contour areas. A more detailed discussion of aircraft operations and noise can be found in Section 4.5.1, *Noise*. Therefore, Alternative #5 is compatible with current land use and zoning designations and would result in minor beneficial impacts.

**Table 4.5.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Rickenbacker IAP Boundary**

<i>Land Use</i>	65 dB TO 70 dB DNL		
	<i>Baseline</i>	<i>Proposed</i>	<i>Change</i>
Industrial	5.3	3.1	-2.2
Public Exempt	0.3	0.1	-0.2
Utilities	0.8	0.3	-0.5
Agricultural	342.1	306.1	-36.0
Non-designated	68.5	35.4	-33.1
<b>Total Area</b>	<b>417</b>	<b>345</b>	<b>-72.0</b>





#### 4.5.7.1 Summary of Impacts

The number of airfield operations would decrease by 6,283 (48 percent decrease) from the currently published FAR Part 150 Noise Compatibility Program, and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres. There would be a decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-controlled property that lie within the 65 dB contour. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to noise levels above 65 dB DNL. Airport Hazard Areas would not be affected.

### 4.5.8 Infrastructure and Transportation

#### 4.5.8.1 Potable Water

Water consumption would be expected to increase slightly under Alternative #5 as a result of the increase in personnel; however, an increase in 184 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

#### 4.5.8.2 Wastewater

Wastewater generation would be expected to increase slightly as a result of the increase in 184 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

#### 4.5.8.3 Stormwater

Under Alternative #5, there would be an up to 368,330 SF (8.5 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.5.4, *Soils and Water*); however, through implementation of appropriate standard construction practices (as described previously), preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 14,660 SF (0.3 acre) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.5.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #5 would be minimal.

#### 4.5.8.4 Electrical and Natural Gas Systems

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with Alternative #5 would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #5 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.5.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 368,330 SF of additions and alterations to existing facilities and 14,660 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Rickenbacker IAP would generate 4,342,611 pounds (2,171 tons) of renovation debris requiring landfill disposal and proposed new construction at Rickenbacker IAP would generate 63,624 pounds (32 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at Rickenbacker IAP would be 2,203 tons.

Solid waste generated at Rickenbacker IAP as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Franklin County Landfill has a remaining life expectancy of 24 years and a permitted throughput of 1,020,659 tons per year (Solid Waste Authority of Central Ohio 2011). The 2,203 tons of proposed construction debris generated at Rickenbacker IAP would represent 0.2 percent of the yearly capacity of the landfill. Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 121 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.5.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 184 under Alternative #5 (see Table 2.3-30). The increase in personnel would create a potential 184 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #5 would add an additional 368 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #5.

#### 4.5.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### 4.5.9 Hazardous Materials and Waste

#### 4.5.9.1 Hazardous Materials

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under the Proposed Actions.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircrafts.

Under Alternative #5, the total number of flying hours for the 121 ARW would increase from 7,215 to 8,040 (an 11 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 121

ARW installation would continue to be followed in future operations associated with Alternative #5 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #5, additions to Hangars 885 and 883 are proposed, and internal renovations to Hangar 888 are proposed. Lead abatement was conducted in 2004 at Buildings 885 and 888. According to the 1995 asbestos report, Hangars 885 and 883 were found to contain no ACM. Building 883 was built in the year 2000 and therefore it is assumed that it does not contain any LBP or ACM. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, Ohio requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.5.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft with the exception of ODSs, which would not be required with the KC-46A. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #5, the total number of flying hours would increase approximately 11 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.5.9.3 Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for

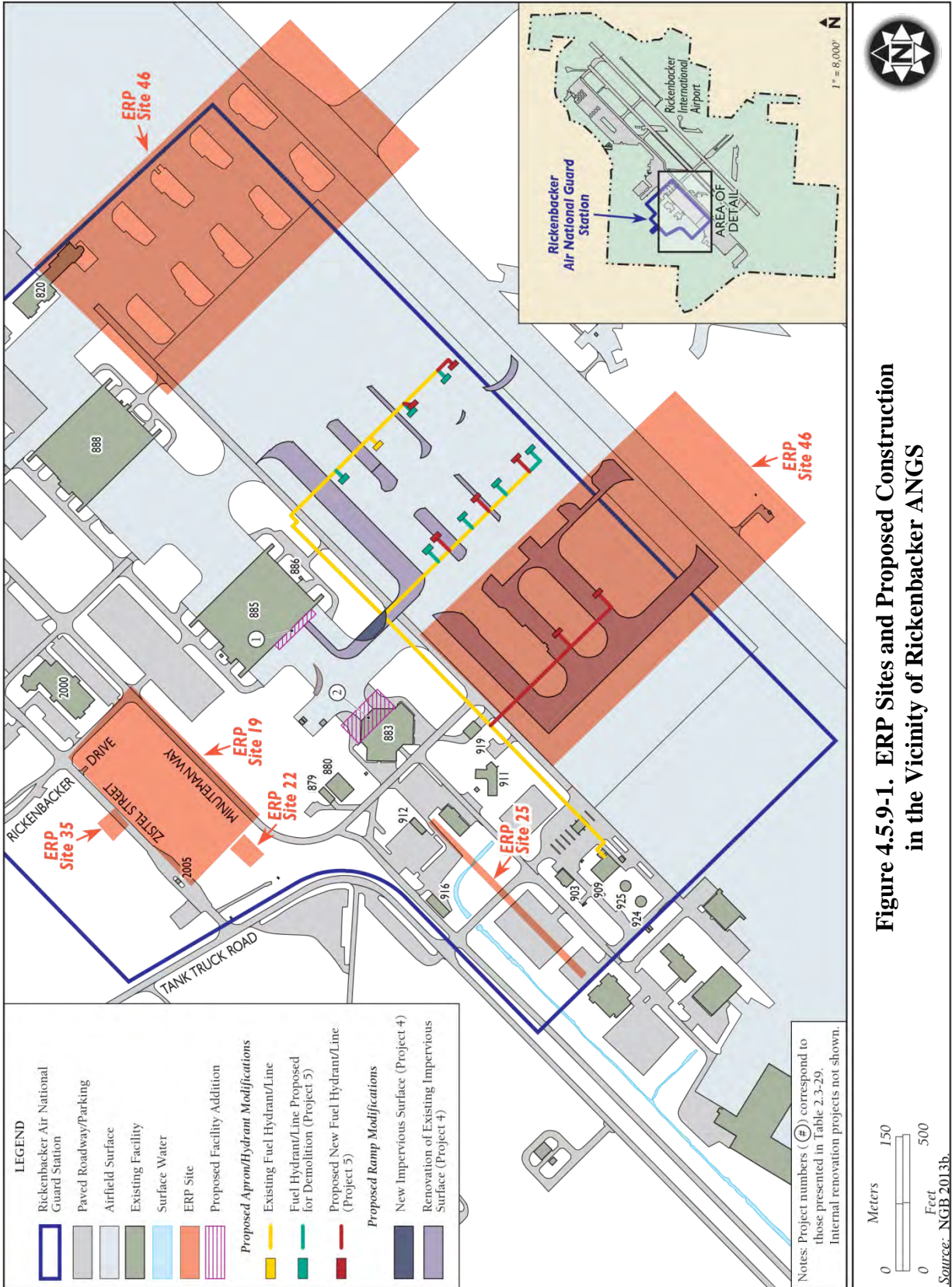
identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One ERP site, Site #46, overlaps with the proposed fuel line under Alternative #5 (Figure 4.5.9-1). This site, which is closed, was investigated as part of a jet fuel pipeline investigation. Petroleum contamination levels for this site were found to be below Bureau of Underground Storage Tank Regulation limits; therefore, it is not expected to pose a vapor intrusion concern. However, it is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.





**Figure 4.5.9-1. ERP Sites and Proposed Construction in the Vicinity of Rickenbacker ANG**

If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

#### 4.5.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure under this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites. However, if contaminated media are encountered during the course of site preparation or site development, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.

#### 4.5.10 Socioeconomics

Under Alternative #5, construction activities would be contained entirely within the boundaries of Rickenbacker IAP. Economic activity associated with proposed construction activities at the 121 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a change in staffing requirements for the 121 ARW. Currently, the 121 ARW is authorized 1,497 personnel. Under Alternative #5, the KC-46A mission would add an additional 197 military positions (increase in 212 full-time positions and reduction of 15 traditional Guard positions) (see Table 2.3-30). Combined with their approximately 268 family members, this would represent less than 0.04 percent of Franklin County population and 0.8 percent of Pickaway County population. Of the 268 family members, approximately 112 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different

areas within Pickaway and Franklin counties. It is anticipated that there is enough capacity within the schools in these counties to absorb this minimal increase in school age children.

A net increase in 197 military personnel positions would amount to an increase of approximately 13.2 percent to the existing 121 ARW personnel. Total payroll associated with the 212 proposed full-time personnel would amount to an estimated total annual salary increase of approximately \$16.5 million.

All 121 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 197 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.04 percent of the total housing units in the Franklin County and less than 0.9 percent of Pickaway County. However, not all the military personnel who would relocate would own homes and personnel would most likely be distributed between the two counties.

#### 4.5.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

### 4.5.11 Environmental Justice and the Protection of Children

#### 4.5.11.1 Minority and Low-Income Populations

Under Alternative #5, there would be no residential populations, including no minority or low-income populations, located within the vicinity of Rickenbacker IAP exposed to aircraft DNL of 65 dB or above. Therefore, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Rickenbacker IAP.

#### 4.5.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there no schools that are exposed to DNL of 65 dB or above. Under Alternative #5 there would be no schools exposed to DNL of 65 dB or above. Therefore, under Alternative #5 there would be no special health or safety risks to children.

#### 4.5.11.3 Summary of Impacts

Given that the acreage within the 65 dB DNL noise contour would be reduced, there would be no residential populations, including no minority or low-income populations, and no additional

schools located within the vicinity Rickenbacker IAP exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Rickenbacker IAP. In addition, there would be no special health or safety risks to children.

## **4.6 NO ACTION ALTERNATIVE**

The CEQ regulation 40 CFR § 1502.14(d) specifically requires analysis of the “No Action” alternative in all NEPA documents. Under the No Action Alternative, the proposed aircraft beddown would not occur, and the NGB would not implement the components described under any of the five Action Alternatives analyzed in the previous sections. There would be no change in based aircraft, use of the airfield or Special Use Airspace (SUA), or personnel assigned to the KC-135 aircraft squadrons and the proposed construction would not be required. Under the No Action Alternative, the NGB would continue to conduct their current mission using the existing KC-135 aircraft with multiple configurations and crews that are not trained to accomplish every mission. This lack of standardized equipment and training throughout the fleet would continue to negatively impact the ability for aircrews to support, on a large scale, multi-role missions or exploit new tactics and procedures. The continued use of the KC-135 aircraft would not meet the identified needs of the NGB or the USAF; however, this alternative is carried forward for analysis in this EIS per CEQ regulations. Impacts at each of the alternative installations as a result of the No Action Alternative are described below.

Under the No Action Alternative there would be no change in based aircraft authorized at any of the alternative installations; use of the respective airfield; construction, or assigned personnel.

- The 190 ARW would continue to fly the air refueling mission with a PAA of 12 KC-135 aircraft and 1,242 personnel.
- The 108 WG would continue to fly the air refueling mission with a PAA of 8 KC-135 aircraft and 1 BAI and 1,329 personnel.
- The 157 ARW would continue to fly the air refueling mission with a PAA of 8 KC-135 aircraft and 1 BAI and 1,382 personnel.
- The 171 ARW would continue to fly the air refueling mission with a PAA of 16 KC-135 aircraft and 1,306 personnel.
- The 121 ARW would continue to fly the air refueling mission with a PAA of 18 KC-135 aircraft and 1,497 personnel, until the 2013 NDAA is fully implemented. At that time, the 121 ARW will have a reduction of 6 KC-135 aircraft, resulting in a PAA of 12 KC-135. There would be a commensurate reduction in personnel assigned to the 121 ARW as a result of implementation of the NDAA (see Section 5.5).

### **4.6.1 Noise**

Noise at each alternative airfield would remain as described in the baseline Noise section for each alternative location (Sections 3.1.1, 3.2.1, 3.3.1, 3.4.1, and 3.5.1). Each of the five

installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. The noise environment at each of the five alternative airfields would continue to be managed through their existing AICUZ or FAR Part 150 airfield compatibility programs. Under each alternative described in the Noise sections in Chapter 4, there were varying changes in the extent of the 65 dB DNL noise contours; some of the alternatives had imperceptible positive changes (Forbes ANGS, Pittsburgh ANGS, Rickenbacker ANGS), and some had larger adverse changes (JB MDL, Pease ANGS). There would be no additional Noise impacts at any of the alternative installations under the No Action Alternative.

#### **4.6.2 Air Quality**

Air Quality at each alternative airfield would remain as described in the baseline Air Quality section for each alternative location (Sections 3.1.2, 3.2.2, 3.3.3, 3.4.2, and 3.5.2) under the No Action Alternative. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Emissions at each of the alternative installations would continue to be in compliance with their respective SIPs. There would be no additional impacts to Air Quality at each alternative installation under the No Action Alternative.

#### **4.6.3 Safety**

Both ground and flight safety at each alternative airfield would remain as described in the baseline Safety section for each alternative location (Sections 3.1.3, 3.2.3, 3.3.3, 3.4.3, and 3.5.3). Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Under each alternative described in Chapter 4, there was a range in the increase of annual airfield operations, with Rickenbacker ANGS increasing by 412 annual operations up to JB MDL, which would increase by 9,268 annual operations. Under the No Action Alternative, this increase in annual airfield operations would not occur at any of the alternative installations. All aspects of both ground and flight safety would be expected to remain as described in Chapter 3. There would be no additional impacts to Safety under the No Action Alternative.

#### **4.6.4 Soils and Water**

Both Soils and Water Resources at each alternative airfield would remain as described in the baseline Soils and Water section for each alternative location (Sections 3.1.4, 3.2.4, 3.3.4, 3.4.4, and 3.5.4). Under the alternatives, surface disturbance at the alternative installations ranged



from 3.0 to 8.5 acres (Pease ANGTS and Rickenbacker ANGTS, respectively); and new impervious surface ranged from 0 to 2.4 acres (Pease ANGTS and JB MDL, respectively). Under the No Action Alternative, none of this proposed construction would occur at any of the alternative installations, although other non-related construction activities would occur to provide the necessary facilities for the on-going mission. There would be no additional impacts to Soils and Water Resources as a result of the No Action Alternative.

#### **4.6.5 Biological Resources**

Biological Resources would remain as described in the baseline Biological Resources section for each alternative location (Sections 3.1.5, 3.2.5, 3.3.5, 3.4.5, and 3.5.5). Under the alternatives, new impervious surface ranged from 0 to 2.4 acres (Pease ANGTS and JB MDL, respectively); and there was a proposed increase in annual airfield operations, with Rickenbacker ANGTS increasing by 412 annual operations up to JB MDL, which would increase by 9,268 annual operations. Under the No Action Alternative, there would be no increase in annual airfield operations at any of the installations, and none of this proposed construction would occur at any of the alternative installations, although other non-related construction activities would occur to provide the necessary facilities for the on-going mission. There would be no additional impacts to Biological Resources as a result of the No Action Alternative.

#### **4.6.6 Cultural Resources**

Under the No Action Alternative, Cultural Resources at each alternative installation would remain as described in the baseline Cultural Resources section for each alternative location (Sections 3.1.6, 3.2.6, 3.3.6, 3.4.6, and 3.5.6). None of the proposed facility construction/renovations would occur at any of the installations, and thus, there would be no potential impacts to facilities that are eligible for listing on the NRHP. There would be no surface disturbance from construction activities, and thus no potential to impact unknown archaeological resources. There would be no additional impacts to Cultural Resources as a result of the No Action Alternative.

#### **4.6.7 Land Use**

Land Use at each alternative airfield would remain as described in the baseline Land Use section for each alternative location (Sections 3.1.7, 3.2.7, 3.3.7, 3.4.7, and 3.5.7). Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Under each alternative described in the Land Use sections in Chapter 4, there were varying changes in the areal extent of the 65 dB DNL noise contours; some of the alternatives had imperceptible positive changes (Forbes ANGTS, Pittsburgh ANGTS, Rickenbacker ANGTS), and

some had larger adverse changes (JB MDL, Pease ANGS), but land use within the 65 dB DNL and greater noise contours was generally considered to be compatible at all locations. There would be no additional impacts to Land Use under the No Action Alternative at any of the alternative locations.

#### **4.6.8 Infrastructure and Transportation**

Under the No Action Alternative, Infrastructure and Transportation at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.8, 3.2.8, 3.3.8, 3.4.8, and 3.5.8). Under the various action alternatives, there would be a range of increases in additional based personnel between 23 and 255 (Pittsburgh ANGS and JB MDL, respectively). Under the No Action Alternative, there would be no change to the based personnel at any of the alternative locations. There would be no increase in use of various utilities or roadway systems under this alternative. There would be no additional impacts to Infrastructure and Transportation under the No Action Alternative.

#### **4.6.9 Hazardous Materials and Wastes**

Under the No Action Alternative, Hazardous Materials and Wastes at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.9, 3.2.9, 3.3.9, 3.4.9 and 3.5.9). Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Under the No Action Alternative, the throughput and management of hazardous materials and wastes would not change from baseline conditions. The benefit of eliminating ODS with the KC-46A would not be realized. There would be no additional impacts to Hazardous Materials and Wastes under the No Action Alternative.

#### **4.6.10 Socioeconomics**

Under the No Action alternative, Socioeconomics at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.10, 3.2.10, 3.3.10, 3.4.10, and 3.5.10). Under the various action alternatives, there would be a range of increases in additional stationed personnel between 23 and 255 (Pittsburgh ANGS and JB MDL, respectively). Under the No Action Alternative, there would be no change to the based personnel at any of the alternatives. Further, under the No Action Alternative, none of the proposed construction activities would occur, and thus the minor economic benefit of additional based personnel and construction activity would not occur at any of the alternative installations. There would be no additional impacts to Socioeconomics under the No Action Alternative.

#### **4.6.11 Environmental Justice and the Protection of Children**

Under the No Action Alternative, Environmental Justice and the Protection of Children at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.11, 3.2.11, 3.3.11, 3.4.11, and 3.5.11). There were no disproportionate impacts to low-income, minority, or children identified under any of the action alternatives. There would be no additional impacts as a result of the No Action Alternative.

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## CHAPTER 5 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.1 ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

#### 5.1.1 Past, Present, and Reasonably Foreseeable Actions

Forbes Field Airport is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #1 are discussed in this section. The ROI for cumulative impacts is generally limited to Forbes Field Airport, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.1.1-1.

**Table 5.1.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Forbes ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>190 ARW Projects</b>		
KC-46A MOB 1 Basing would add 977 airfield operations per year to Forbes Field Airport	N/A	FY 2015
Forbes Field Airport Runway 03-21: Mill and overlay existing concrete with 4 inches of asphalt. Add medium intensive lighting.	N/A	FY 2013 – FY 2014
Building 770: Consolidate vehicle maintenance/AGE	2,000	FY 2014
Building 665: Repair roof	N/A	FY 2014
Secondary Entry Control: Add new control point at main entry	80,000	FY 2015
Parking ramp: replace parking ramp at the full depth	850,000	FY 2016
Building 550 Repair roof, add 78 photovoltaic panels	N/A	FY 2017
Building 200: Repair roof, add photovoltaic panels	80,000	FY 2018
Repair Building 668	N/A	FY 2018

Notes: SF = square feet; 190 ARW = 190<sup>th</sup> Air Refueling Wing; MOB 1 = Main Operating Base 1; FY = Fiscal Year; AGE = aerospace ground equipment

## 5.1.2 Cumulative Impacts

### 5.1.2.1 Noise

Under Alternative #1, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 41 acres. There are no residential areas that underlie the noise contours under this alternative. While there are other projects listed in Table 5.1.1-1 that have the ability to add noise to the environment at Forbes Field Airport, most of these, with the exception of the potential MOB 1 KC-46A use of the airfield, are short-term construction projects that would occur in what is otherwise an industrial setting. Noise associated with the additional 977 MOB 1 annual operations would not be expected to change the noise contours to the extent that additional sensitive receptors would be impacted, or that would result in land use incompatibilities. Noise from implementation of these actions would be short term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at Forbes Field Airport would be minimal.

### 5.1.2.2 Air Quality

The net annual emissions increases from the proposed KC-46A beddown as well as the other projects described in Table 5.1.1-1 at Forbes Field Airport (including both construction and airfield operations) would be below the CAA PSD major source thresholds as set forth in the CAA for all pollutants. Implementation of the proposed KC-46A beddown at Forbes Field Airport would contribute to less than adverse (or less than significant) cumulative impacts to air quality.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Forbes ANG's beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.



#### 5.1.2.3 Safety

Providing new and renovated facilities for the 190 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 190 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. The fire and crash response capability currently provided by the 190 ARW at Forbes Field Airport is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #1 or those activities described in Table 5.1.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.1.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.1.2.4 Soils and Water

##### *Soils*

In addition to the 258,149 SF (5.9 acres) of surface disturbance that would result from the implementation of Alternative #1, additional surface area would also be disturbed in the vicinity as a result of the projects described in Table 5.1.1-1 over the next 5 years.

The Clean Water Act (CWA) considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.1.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Provided that the projects in Table 5.1.1-1 are all within federal lands, each project would be subject to Farmland Protection Policy Act compliance. Should any of these projects have the potential to convert farmland to non-farm use, a land evaluation and site assessment would be conducted and alternative sites considered should potential adverse impacts to farmland exceed the recommended allowable level.

#### *Water*

There would be no increase in impervious surfaces as a result of implementation of Alternative #1. It is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to surface water and groundwater would be expected to be minor.

#### 5.1.2.5 Biological Resources

DNL noise contours from operations would be expected to decrease by 41 acres from baseline with the conversion to the KC-46A aircraft. Noise levels from construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the KC-46A at Forbes Field Airport would be projected to increase by approximately 39 percent from baseline operations (17 percent increase in total airfield operations). An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No special status species are currently known to reside on Forbes Field Airport and there is only a low potential for them to occur within the vicinity due to the lack of habitat. There would be no construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.1.1-1. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 190 ARW installation and at Forbes Field Airport would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. Therefore, cumulative impacts to biological resources would be minor.

#### 5.1.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during

proposed construction activities associated with Alternative #1 or any of the projects listed in Table 5.1.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. Under Alternative #1, only one of the buildings proposed for modification (Building 679) is eligible for listing in the NRHP. However, extensive renovations have occurred to this building that were mitigated through a Memorandum of Agreement signed in 2009. The current interior modifications would not affect this previous agreement. Additionally, the Kansas SHPO has concurred that there would be no historic properties affected with implementation of Alternative #1 (Zollner 2013). Therefore, there would be no adverse effect to a historic property. No traditional cultural resources have been identified on the installation. None of the facilities listed for renovation and/or modification listed in Table 5.1.1-1 are eligible for listing in the NRHP. Therefore, no cumulative impacts to cultural resources are anticipated.

#### 5.1.2.7 Land Use

Under Alternative #1, acreage off airport property contained within the 65 dB DNL and greater noise contours would decrease by approximately 41 acres resulting in beneficial impacts. In general, land uses surrounding Forbes Field Airport would not be adversely affected by the activities described under Alternative #1 in concert with those described in Table 5.1.1-1. The location and function of proposed structures within the Forbes ANG's are compatible with the surrounding area. Although future development at Forbes Field Airport and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project-specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment airfield safety zones. If the rehabilitation of the runway in 2014 is approved, all based aircraft would need to be relocated to a different airfield during construction. Additionally, if the USAF MOB 1 bases the KC 46 at McConnell AFB, Forbes Field Airport would be used as an auxiliary field, adding an additional 977 operations per year. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.1.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #1. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.1.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily

affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.1.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet, with the exception of ODSs. Under Alternative #1, the total number of flying hours for the 190 ARW would increase approximately 65 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.1.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.1.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.1.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.1.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. Additionally, there would be a permanent increase in 194 military positions. However, short-term cumulative beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #1 and those projects listed in Table 5.1.1-1 would be negligible on a regional scale.

5.1.2.11 Environmental Justice and the Protection of Children

Under Alternative #1, in concert with those projects listed in Table 5.1.1-1, there would be no residential populations, including no minority or low-income populations, located within the projected 65 dB DNL noise contour in the vicinity of Forbes Field Airport. There are no other projects listed in Table 5.1.1-1 that would be expected to impact environmental justice communities. Therefore, there would be no cumulative impacts to the health or safety of children.

## 5.2 ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.2.1 Past, Present, and Reasonably Foreseeable Actions

McGuire Field is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #2 are discussed in this section. The ROI for cumulative impacts is generally limited to McGuire Field, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.2.1-1.

**Table 5.2.1-1. Past, Present, and Reasonably Foreseeable Actions in the ROI for JB MDL**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>108 WG Projects</b>		
Demolition of Building 3326	940	FY 2015 – FY 2017
Addition to Building 3325	3,000	FY 2015 – FY 2017
<b>JB MDL Projects</b>		
Various airfield repairs - Repair airfield shoulders, Assault Landing Zone Runway shoulders, main ramp taxiway, repair concrete apron and Alpha ramp, replace Taxiway A, B, C, D, and L edge lights, repair Runway 15/33, Repair Transportation Working Capital Fund apron.	Currently unknown	FY 2013
Construct Munitions Storage Area	Currently unknown	FY 2014 – FY 2018
Construct Physical Fitness Facility	Currently unknown	FY 2014 – FY 2018
Construct Fire Station	Currently unknown	FY 2014 – FY 2018
Construct Global Reach Development Complex	Currently unknown	FY 2014 – FY 2018
Construct Education and Professional Development Center	Currently unknown	FY 2014 – FY 2018



**Table 5.2.1-1. Past, Present, and Reasonably Foreseeable Actions in the ROI for JB MDL**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
Construct Unified Security Forces Operations Facility	Currently unknown	FY 2014 – FY 2018
Addition to Combat Communications Admin Facility, Building 3514	Currently unknown	FY 2014 – FY 2018
Construct Army Aviation Support Facility	Currently unknown	FY 2014 – FY 2018
Construct Aviation Readiness Center	Currently unknown	FY 2014 – FY 2018
Construct Communications-Electronics Research, Development, and Engineering Center	Currently unknown	FY 2014 – FY 2018
<b>Other Projects</b>		
Hurricane Sandy U.S. Army Corps of Engineers disaster relief projects to repair, restore, and fortify the coastline. Four projects exceed NO <sub>x</sub> trigger level of 100 TPY.	N/A	FY 2014 – FY 2016

Notes: SF = square foot; 108 WG = 108<sup>th</sup> Wing; FY = Fiscal Year; JB MDL = Joint Base McGuire-Dix-Lakehurst; N/A = Not Applicable; TPY = tons per year

## **5.2.2 Cumulative Impacts**

### **5.2.2.1 Noise**

Under Alternative #2, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 1,831 acres. Of the acreage exposed to 65 dB DNL or greater, approximately 751 would be off-airport property. While there are other projects listed in Table 5.2.1-1 that have the ability to add noise to the environment at JB MDL, most of these are short-term construction projects that would occur in what is otherwise an industrial setting. Noise from implementation of these actions would be short-term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at JB MDL would be minimal.

### **5.2.2.2 Air Quality**

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.2.1-1 at JB MDL (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants except NO<sub>x</sub>. JB MDL and the USACE have entered into a Memorandum of Agreement that would allow temporary use of a portion of the NO<sub>x</sub> SIP emissions budget for calendar years 2014 through 2016 to allow the USACE to proceed with construction projects to repair, restore, and fortify the coastline in the state of New Jersey in response to damage during Hurricane Sandy (JB MDL and USACE 2013). The USACE projects will be completed prior to implementation of Alternative

#2 at JB MDL, should that alternative be selected for the KC-46A MOB 2 beddown; therefore, the temporary use of NO<sub>x</sub> emissions within the SIP would be complete by the time the emissions associated with Alternative #2 would occur, which would be scheduled to commence in 2018.

A Conformity Determination as required under the General Conformity Rule would ensure that the selected action would conform to the requirements of the applicable SIP and would not cause or contribute to a delay in attainment consistent with 42 USC § 7506(c). The purpose of the General Conformity Rule is to demonstrate that project emissions, combined with all of the other air basin emissions, would not result in a cumulative impact and thereby delay attainment of the air quality standards. The ANG has prepared a Draft Conformity Determination that demonstrates that emissions associated with Alternative #2 are within the SIP NO<sub>x</sub> emissions budget for JB MDL. It is anticipated that the ANG will obtain an affirmative Conformity Determination prior to signing of the ROD. Thus, given that Alternative #2 will have demonstrated conformity with the SIP, cumulative impacts to air quality would not be significant.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on JB MDL beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

### 5.2.2.3 Safety

Providing new and renovated facilities for the 108 WG that support operational requirements and are properly sited with adequate space and a modernized supporting infrastructure would generally improve ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 108 WG. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. A new fire station would enhance fire and crash response capability at JB MDL. Risk of a catastrophic event occurring during construction activities described under Alternative #2 or those activities described in Table 5.2.1-1 is considered to be low, and strict adherence to

all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Additionally, the new munitions storage area facility at JB MDL would be sited in accordance with AFMAN 91-201 and improve munitions safety. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.2.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.2.2.4 Soils and Water

##### *Soils*

In addition to the 204,009 SF (4.7 acres) of surface disturbance that would result from the implementation of Alternative #2, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.2.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.2.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Provided that the projects in Table 5.2.1-1 are all within federal lands, each project would be subject to Farmland Protection Policy Act compliance. Should any of these projects have the potential to convert farmland to non-farm use, a land evaluation and site assessment would be conducted and alternative sites considered should potential adverse impacts to farmland exceed the recommended allowable level.

## Water

In addition to the 104,884 SF (2.4 acres) of new impervious surface that would result from Alternative #2, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.2.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.2.1-1 are located within federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

### 5.2.2.5 Biological Resources

DNL noise contours would be expected to increase over 1,831 acres. However, the noise levels from operations and construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with aircraft and military operations. Noise levels from construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the 108 WG are projected to increase by approximately 111 percent from baseline operations (15 percent increase in total airfield operations). An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.2.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 108 WG installation and at JB MDL would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. No federally listed species are currently known to occur on the 108 WG installation and there is only

a low potential for them to occur within the vicinity due to the lack of habitat. Six state listed species have been observed on McGuire Field. Grassland habitat located within the potential ramp expansion area could provide habitat for these species. However, to the extent possible, construction would not occur during the breeding season for grassland birds (March 15 to July 31). Cumulative impacts to biological resources would be minor.

#### 5.2.2.6 Cultural Resources

The area of proposed construction is considered to have no to low probability of containing archaeological resources. Additionally, the Proposed Action would disturb a relatively small amount of acreage, all of which has previously been disturbed. The proposed use is consistent with the installations historical land use for over 70 years. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #2 or any of the projects listed in Table 5.2.1-1, activities would immediately cease in the area of the discovery and the JB MDL Cultural Resource Manager would immediately be contacted for further instruction. None of the facilities listed for renovation and/or modification under Alternative #2 or those listed in Table 5.2.1-1 are eligible for listing in the NRHP. Two of the buildings (3333 and 3336) listed for renovation and/or modification under Alternative #2 are less than 20 years old. Hangar 3322 (built in 1957) was evaluated for NRHP eligibility in 2013 and the results of the inventory indicated that Hangar 3322 is not eligible (JB MDL 2013d). SHPO consultation for this EIS has provided concurrence that no historic properties would be affected under the proposed action (see Saunders 2013 in Appendix B3). No traditional cultural resources have been identified on the installation. Therefore, contingent upon evaluation of Building 3322, no cumulative impacts to cultural resources are anticipated.

#### 5.2.2.7 Land Use

Under Alternative #2, acreage off airport property contained within the 65 dB DNL and greater noise contours would increase by approximately 751 acres. In general, land uses surrounding JB MDL would not be adversely affected by the activities described under Alternative #2 in concert with those described in Table 5.2.1-1. The location and function of proposed structures within the JB MDL are compatible with the surrounding area. Although future development at JB MDL and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the counties, cities and other municipalities. Project specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment in and near airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.2.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #2. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.2.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.2.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet, with the exception of ODSs. Under Alternative #2, the total number of flying hours for the 108 WG would increase approximately 118 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.2.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.2.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.2.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.2.1-1, such as employment and materials purchasing,

would provide short-term economic benefits to the local economy. Additionally, there would be a permanent increase of 287 military positions. However, short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #2 and those projects listed in Table 5.2.1-1 would be negligible on a regional scale.

#### 5.2.2.11 Environmental Justice and the Protection of Children

Under Alternative #2, in concert with those projects listed in Table 5.2.1-1, roughly 128 persons (48 more than baseline) that would be affected by DNL between 65 dB and 75 dB, approximately 23 would be minority (18 percent). This is an increase of 11 people, or 3 percent, of minorities affected. The number of low-income persons affected by DNL greater than 65 dB would be approximately 6 (an increase of 2 people and less than 1 percent). Overall, the number of persons affected by DNL of 65 dB and greater would increase slightly under this alternative, and the increase in the percentage of minority and low-income persons affected would be minor. Under Alternative #2, there would be no new Kindergarten through Grade 12 schools exposed to a DNL of 65 dB or above; however, the child development center that is currently under the 65 dB contour would be located under the 70 dB contour. There would not be disproportionate cumulative impacts to minority or low-income populations in the vicinity of JB MDL as a result of this action in concert with the current noise impacts from the airport. There are no other projects listed in Table 5.2.1-1 that would be expected to impact environmental justice communities or the health or safety of children.



### 5.3 ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

#### 5.3.1 Past, Present, and Reasonably Foreseeable Actions

Portsmouth IAP is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #3 are discussed in this section. The ROI for cumulative impacts is generally limited to Portsmouth IAP and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.3.1-1.

**Table 5.3.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Pease ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>157 ARW Projects</b>		
Airfield Pavements: Repair and upgrade pavement areas	61,281	FY 2014 – FY 2015
Building 252: Repair roof	26,200	FY 2014 – FY 2015
Parking Lots: Repair Installation-Wide (Crack Seal/ Seal Coat)	270,000	FY 2014 – FY 2015
Bulk Fuel Roads: Repair and upgrade asphalt	57,654	FY 2014 – FY 2015
Building 257: Renovate for Security Forces	14,000	FY 2014 – FY 2015
Building 251: Renovate for Fuel Cell Operations	27,471	FY 2014 – FY 2015
Building 151: Build addition to support medical facilities	12,126	FY 2016 – FY 2018
Building 244: Demolish for Security Forces Facility	24,047	FY 2016 – FY 2018
Non-Organizational Parking: Replace to conform to AT/FP standards	150,021	FY 2016 – FY 2018
Building 152: Demolish for proposed expansion of facilities	14,486	FY 2016 – FY 2018
Building 244: Demolish for Security Forces Facility	24,047	FY 2016 – FY 2018
Parking Apron: Upgrade and add Hydrant, including interstitial monitoring and containment	198,000	FY 2016 – FY 2018
Aircraft Parking Apron: Repair as Phase V for Multi-Hangar construction	296,766	FY 2016 – FY 2018

Notes: SF = square foot; 157 ARW = 157<sup>th</sup> Air Refueling Wing; FY = Fiscal Year

### 5.3.2 Cumulative Impacts

#### 5.3.2.1 Noise

Under Alternative #3, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 135 acres. Of the acreage exposed to 65 dB DNL or greater, approximately 4 would be off the airport property. There are no residential areas that underlie the noise contours under this alternative. While there are other projects listed in Table 5.3.1-1 that have the ability to add noise to the environment at Portsmouth IAP, most of these are short-term construction projects that would occur in what is otherwise an industrial setting. Noise from implementation of these actions would be short term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at Portsmouth IAP would be minimal.

#### 5.3.2.2 Air Quality

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.3.1-1 at Pease ANGS (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants. Therefore, cumulative impacts to air quality would not be significant.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Pease ANGS beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

#### 5.3.2.3 Safety

Providing new and renovated facilities for the 157 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting

infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 157 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. The fire and crash response capability currently provided by the 157 ARW at Portsmouth IAP is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #3 or those activities described in Table 5.3.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.3.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.3.2.4 Soils and Water

##### *Soils*

In addition to the 130,966 SF (3.0 acres) of surface disturbance that would result from implementation of Alternative #3, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.3.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.3.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

## *Water*

In addition to the 23,617 SF (0.5 acre) of new impervious surface that would result from Alternative #3, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.3.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.3.1-1 are located within Federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

### **5.3.2.5 Biological Resources**

Noise contours would be expected to increase by 135 acres from baseline with the conversion to the KC-46A aircraft. However, these noise levels from operations and construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the 157 ARW at Portsmouth IAP are projected to increase by approximately 44 percent from baseline operations (7 percent increase in total airfield operations). An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. No federally threatened and endangered species are currently known to occur on Portsmouth IAP; however, eight state listed species are currently known to occur on Portsmouth IAP. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.3.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 157 ARW installation and at Portsmouth IAP would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However,

wildlife that uses these areas is typical of urban and suburban areas. Cumulative impacts to biological resources would be minor.

#### 5.3.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #3 or any of the projects listed in Table 5.3.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. None of the facilities listed for renovation and/or modification under Alternative #3 or those listed in Table 5.3.1-1 are eligible for listing in the NRHP. The SHPO has concurred with a “no historic properties affected” determination (Muzzey 2013). No traditional cultural resources have been identified on the installation. Therefore, no cumulative impacts to cultural resources are anticipated.

#### 5.3.2.7 Land Use

Under Alternative #3, acreage off airport property contained within the 65 dB DNL and greater noise contours would increase by approximately 135 acres. In general, land uses surrounding Portsmouth IAP would not be adversely affected by the activities described under Alternative #3 in concert with those described in Table 5.3.1-1. The location and function of proposed structures within the Pease ANGTS are compatible with the surrounding area. No future development at Portsmouth IAP and adjacent areas has been identified; however, any future development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project-specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment in and near airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.3.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #3. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.3.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily

affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.3.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet with the exception of ODSs. Under Alternative #3, the total number of flying hours for the 157 ARW would increase approximately 29 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.3.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.3.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.3.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.3.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. Additionally, there would be a permanent increase of 171 military positions. However, short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #3 and those projects listed in Table 5.3.1-1 would be negligible on a regional scale.

#### 5.3.2.11 Environmental Justice and the Protection of Children

Under Alternative #3 in concert with those projects listed in Table 5.3.1-1, there would be no residential populations, including no minority or low-income populations, located within the

projected 65 dB DNL noise contour in the vicinity of Portsmouth IAP. There are no other projects listed in Table 5.3.1-1 that would be expected to impact environmental justice communities. Therefore, there would be no cumulative impacts to the health or safety of children.



## 5.4 ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.4.1 Past, Present, and Reasonably Foreseeable Actions

Pittsburgh IAP is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #4 are discussed in this section. The ROI for cumulative impacts is generally limited to Pittsburgh IAP, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.4.1-1.

**Table 5.4.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Pittsburgh ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>171 ARW Projects</b>		
Interior renovations of Buildings 310 (Jet Engine Shop and AGE), 316 (non-powered AGE Corrosion Control and Nondestructive Inspection), and 307 (Small Air Terminal Facility)	NA	FY 2013
Construct new security forces and physical fitness facility.	8,000	Within the next 5 years.
Interior renovations of Building 300 (Medical, dining hall, and operations and training), Hangars 301 and 302 (for various uses), and 110 and 120 (supply consolidation).	Currently unknown	Within the next 5 years.
Expand Building 206: Special Operations Weather Team	5,655	Within the next 5 years.
Expand Building 107 for small air terminal.	12,800	Within the next 5 years.
Construct new AT/FP commercial vehicle inspection facility.	N A	Within the next 5 years.
Phase 1: Demolition of current parking areas (108 parking spaces) and construction of new parking (107 parking spaces) for AT/FP compliance. Phase 2: Demolition of current parking areas (206 parking spaces) and construction of new parking (230 parking spaces) for AT/FP compliance.	Currently unknown	Completed within the last few years.

**Table 5.4.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Pittsburgh ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
Demolition of Buildings 102 (Reserve Forces Training, Physical Fitness), 103 (Security Forces, Nondestructive Inspection Shop), and 105 (Base Exchange).	18,292	Within the next 5 years.
Plan identified renovate Building 304 and move the Fire Station to this building.	N/A	Within the next 5 years.
Construct Deployment Processing Center and Relocate Munitions Storage Area.	8,000	Within the next 5 years.
Construct New Simulator Facility	6,600	Within the next 5 years.
<b>911<sup>th</sup> Airlift Wing Pittsburgh IAP Air Reserve Station</b>		
Acquisition by lease of a 26-acre parcel at the Pittsburgh IAP known as the “T-Ramp” owned by ACAA. The 911 <sup>th</sup> Airlift Wing has been using the T-Ramp property since 1993 under a Memorandum of Agreement to provide space for the 911 <sup>th</sup> Airlift Wing to relocate C-130 aircraft for parking during construction activity.	NA	Within the past year.
<b>Pittsburgh IAP</b>		
U.S. Airways pulled its hub out of Pittsburgh IAP in 2004, dropping passenger traffic by over 8 million, significantly reducing airfield operations and eliminating approximately 7,000 jobs.	NA	FY 2004
Drilling of Marcellus Shale oil and natural gas well sites on Pittsburgh IAP property	NA	Within the next 5 years.
Two non-aviation buildings being constructed west of highway off airport property.	NA	In progress

*Notes:* SF = square foot; 171 ARW = 171<sup>st</sup> Air Refueling Wing; AGE = aerospace ground equipment; FY = Fiscal Year; AT/FP = anti-terrorism/force protection; IAP = International Airport; ACAA = Allegheny County Airport Authority

## 5.4.2 Cumulative Impacts

### 5.4.2.1 Noise

Under Alternative #4, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 79 acres. Of the acreage exposed to 65 dB DNL or greater, approximately 23 would be off-airport property. Residential use areas that underlie the noise contours would be slightly reduced under Alternative #4. While there are other projects listed in Table 5.4.1-1 that have the ability to add noise to the environment at Pittsburgh IAP, most of these are short-term construction projects that would occur in what is otherwise an industrial setting. Noise from implementation of these actions would be short-term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at Pittsburgh IAP would be minimal.

#### 5.4.2.2 Air Quality

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.4.1-1 at Pittsburgh ANGS (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants. Therefore, cumulative impacts to air quality would not be significant.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Pittsburgh ANGS beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

#### 5.4.2.3 Safety

Providing new and renovated facilities for the 171 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 171 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. Additional beneficial impacts would occur from a new AT/FP commercial vehicle inspection facility and parking. The fire and crash response capability currently provided by the 171 ARW at Pittsburgh IAP is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #4 or those activities described in Table 5.4.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.4.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements. No adverse impacts to ground safety are anticipated at the airfield. There would be a large decrease in

airfield operations at Pittsburgh IAP from those previously analyzed as a result of the U.S. Airways ceasing operations at Pittsburgh IAP. No increase in the safety risk is expected due to the accident and mishap potential associated with aircraft operations. Cumulative impacts to safety would be negligible.

#### 5.4.2.4 Soils and Water

##### *Soils*

In addition to the 186,395 SF (4.3 acres) of surface disturbance that would result from implementation of Alternative #4, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.4.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.4.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of construction standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

##### *Water*

In addition to the 88,529 SF (2.0 acres) of new impervious surface that would result from Alternative #4, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.4.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.4.1-1 are located within federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

#### 5.4.2.5 Biological Resources

Noise levels from construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the 171 ARW at Pittsburgh IAP would be projected to increase by approximately 33 percent from baseline operations. An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No federally threatened and endangered species are currently known to occur on Pittsburgh IAP. One state listed species is currently known to occur on Pittsburgh IAP. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.4.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 171 ARW installation and at Pittsburgh IAP would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. Cumulative impacts to biological resources would be minor.

#### 5.4.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #4 or any of the projects listed in Table 5.4.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. None of the facilities listed for renovation and/or modification under Alternative #4 or those listed in Table 5.4.1-1 are eligible for listing in the NRHP. The SHPO has concurred that two of the buildings listed for renovation and/or modification under Alternative #4 are not eligible to the NRHP (see MacDonald 2011 in Appendix B4). The third building is less than 15 years old and not a resource of exceptional significance (eligible under Criterion Consideration G); therefore, it is

not eligible to the NRHP. No traditional cultural resources have been identified on the installation. Therefore, no cumulative impacts to cultural resources are anticipated.

#### 5.4.2.7 Land Use

Under Alternative #4, acreage off airport property contained within the 65 dB DNL and greater noise contours would decrease by approximately 23 acres resulting in beneficial impacts. In general, land uses surrounding Pittsburgh IAP would not be adversely affected by the activities described under Alternative #4 in concert with those described in Table 5.4.1-1. The location and function of proposed structures within the Pittsburgh ANGTS are compatible with the surrounding area. Although future development at Pittsburgh IAP and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment to airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.4.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #4. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.4.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.4.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135

fleet with the exception of ODSs. Under Alternative #4, the total number of flying hours for the 171 ARW would increase approximately 34 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.4.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. No changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.4.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. None of the ERP sites overlap the proposed construction projects under Alternative #4. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.4.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.4.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #4 and those projects listed in Table 5.4.1-1 would be negligible on a regional scale.

#### 5.4.2.11 Environmental Justice and the Protection of Children

Under Alternative #4, of the roughly 12 persons that would continue to be affected by DNL above 65 dB DNL, none are considered to be minorities or low-income populations. No additional minorities or low-income populations would be impacted by aircraft DNL greater than 65 dB under Alternative #4. There would not be disproportionate cumulative impacts to minority or low-income populations in the vicinity of Pittsburgh IAP as a result of this action in concert with the projects listed in Table 5.4.1-1. Therefore, there would be no cumulative impacts to the health or safety of children.



## 5.5 ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.5.1 Past, Present, and Reasonably Foreseeable Actions

Rickenbacker IAP is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #5 are discussed in this section. The ROI for cumulative impacts is generally limited to Rickenbacker IAP, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.5.1-1.

**Table 5.5.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Rickenbacker ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>121 ARW Projects</b>		
Under the NDAA Implementation Plan, Rickenbacker ANG will lose 6 KC-135s in FY 2013.	NA	In progress – FY 2013
New main entrance and guard house: Construction of a new Main Entrance to include 100 percent inspection area, vehicle turn-around, truck inspection canopy, and guardhouse. This includes 32,000 SF of new impervious surface.	47,030	Completed within the last few years
Repair Aircraft Ramp: Seal existing concrete joints, repair storm drain, mill asphalt; remove concrete pavement, pour new asphalt pavement with base, pour new concrete pavement for aircraft parking.	1,336,630	In progress – FY 2014
New Small Arms Indoor Range System: New Small Arms Range, range supplies and equipment storage. This includes 14,400 SF of new impervious surface.	18,400	Within the next 5 years
New Composite Reserve Forces Operations and Training and Medical Training/Administration Facility: Mission Support Group/Mission Support Flight, Medical Administration, Medical Training. This includes 68,220 SF of new impervious surface.	176,220	Within the next 5 years

**Table 5.5.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Rickenbacker ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
New Civil Engineering Pavements and Grounds and Central Hazardous Waste Facility: Pavements and Grounds Facility, Central Hazardous Waste Accumulation Point. This includes 8,000 SF of new impervious surface.	22,850	Within the next 5 years
Repair Base Asphalt Pavements	234,000	Completed within the last few years
Renovate/Repair Building 872: Renovate Building 872 office areas, install Exterior Insulation and Finish System, new windows, and repair lintels and sills in warehouse.	0	Completed within the last few years
Replace Existing Water Lines: Replace water pipes and valves, install new smart water meters.	280,830	Within the next 5 years
<b>Rickenbacker IAP</b>		
Rickenbacker Parkway Phase 1 and 2A: Construction of a median-divided four-lane curb and gutter asphalt roadway. Total length was approximately 3.3 miles along the west side of the airport. Phase 1 was completed in 2006 (Phase 1A) and 2007 (Phase 1B). Phase 2A was completed 2012.	NA	Completed within the last seven years
Rickenbacker Parkway Phase 2B: Extension of the median-divided four-lane curb and gutter asphalt roadway to the north side of the airport up to and including improvements (primarily lane widening) to SR 317 and Alum Creek Drive. Project is out to bid now and will be constructed 2013 through 2014.	NA	Within next few years.
Groveport Road Reconfiguration Phase 1 and Phase 2: Phase 1 included the primarily lane widening at the intersection of Groveport Road and Alum Creek Drive just south of Interstate 270 intersection. Completed in 2012. Phase 2 includes a new bridge and roundabouts to reconfigure vehicular traffic flow at the intersection of Groveport Road and Alum Creek Drive. Project is under construction and will be complete in 2013.	NA	Completed in 2012/To be completed in 2013
East-West Connector (Pickaway County south of airport) Phase 1A and 1B: Phase 1A includes the reconstruction and widening (to 3 lanes) of Duvall Road from SR 23 over to Ashville Pike, including a bridge over the existing railroad tracks. Phase 1B includes the reconstruction and widening (to 3 lanes) of Ashville Pike from Duvall Road up to Rickenbacker Parkway. Project is being bid and construction will start summer 2013 and be complete in 2014.	NA	To be completed in 2014

*Notes:* SF = square foot; 121 ARW = 121<sup>st</sup> Air Refueling Wing; NDAA = National Defense Authorization Act; ANG = Air National Guard Station; FY = Fiscal Year; IAP = International Airport; SR = State Route

## 5.5.2 Cumulative Impacts

### 5.5.2.1 Noise

Under Alternative #5, the number of acres contained within the 65 dB DNL and greater exposure area would decrease slightly by approximately 99 acres, including a reduction of approximately 72 acres of off-airport property. There are no residential areas that underlie the noise contours under this alternative. While there are other projects listed in Table 5.5.1-1 that have the ability to add noise to the environment at Rickenbacker IAP, most of these are short-term construction

projects that would occur in what is otherwise an industrial setting other than the reduction of aircraft assigned to the 121 ARW which would cause further reduction in noise contours. Noise from implementation of these actions would be localized to the airport environs, and would not be expected to increase the overall noise contours. Cumulative impacts to the noise environment at Rickenbacker IAP would not be significant.

#### 5.5.2.2 Air Quality

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.5.1-1 at Rickenbacker ANG (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants. Due to the projected loss of aircraft in FY 2013, this would further reduce emissions. It is not anticipated that any of the projects identified in Table 5.5.1-1 would impact air quality.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Rickenbacker ANG beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

#### 5.5.2.3 Safety

Providing new and renovated facilities for the 121 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 121 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. The fire and crash response capability currently provided by the 121 ARW at Rickenbacker IAP is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #5 or those activities

described in Table 5.5.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. PAA reduction under the 2013 NDAA would further reduce safety concerns. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.5.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.5.2.4 Soils and Water

##### *Soils*

In addition to the 368,330 SF (8.5 acres) of surface disturbance that would result from implementation of Alternative #5, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.5.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.5.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

##### *Water*

In addition to the 14,660 SF (0.3 acre) of new impervious surface that would result from Alternative #5, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.5.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff

accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.5.1-1 are located within federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

#### 5.5.2.5 Biological Resources

Noise from temporary construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the KC-46A at Rickenbacker IAP are projected to increase by approximately 6 percent from baseline operations. An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No federally threatened and endangered species and one state listed species are currently known to occur on Rickenbacker IAP. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.5.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 121 ARW installation and at Rickenbacker IAP would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. Cumulative impacts to biological resources would be minor.

#### 5.5.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #5 or any of the projects listed in Table 5.5.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. Under the Proposed Action, two of the buildings proposed for modification are eligible for listing in the NRHP (Hangar 885 and 888) (Snyder 2007). Hangar 885 would have an addition and renovations inside to house the new aircraft and support facilities. Because these renovations would alter the

exterior appearance of a structure that is considered eligible because of its design, the construction would have an adverse effect on a historic property. Modifications to Hangar 888 would all be interior and are not expected to have an adverse effect on this NRHP-eligible resource. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46 beddown, further consultation would be conducted to minimize and mitigate adverse effects to these buildings (see Appendix B, Section B3). No traditional cultural resources have been identified on the installation. Cumulative impacts to cultural resources are anticipated to be minor.

#### 5.5.2.7 Land Use

Under Alternative #5, acreage off airport property contained within the 65 dB DNL and greater noise contours would decrease by approximately 72 acres resulting in beneficial impacts. In general, land uses surrounding Rickenbacker IAP would not be adversely affected by the activities described under Alternative #5 in concert with those described in Table 5.5.1-1. The location and function of proposed structures within the Rickenbacker ANG are compatible with the surrounding area. Although future development at Rickenbacker IAP and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project-specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.5.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be commensurate with the impacts from the loss of six aircraft and the increase in personnel under Alternative #5. Further, building space and facilities to be constructed as a component of this action, as well as those identified in Table 5.5.1-1, may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy

conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.5.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet, with the exception of ODSs. Under Alternative #5, the total number of flying hours for the 121 ARW would increase approximately 11 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.5.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.5.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.5.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.5.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. Under the NDAA Implementation Plan, the 121 ARW will lose six KC-135 aircraft, including a reduction in personnel. As a result, cumulative impacts under Alternative #5 would mean a greater increase in personnel than projected, and therefore a greater increase in total annual salary for the full-time employees based on those changes. Short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #5 and those projects listed in Table 5.5.1-1 would be negligible on a regional scale.

#### 5.5.2.11 Environmental Justice and the Protection of Children

Under Alternative #5, in concert with those projects listed in Table 5.5.1-1, there would be no residential populations, including no minority or low-income populations, located within the projected 65 dB DNL noise contour in the vicinity of Rickenbacker IAP. There are no other projects listed in Table 5.5.1-1 that would be expected to impact environmental justice



communities. Under Alternative #5 there would be no schools exposed to aircraft DNL of 65 dB or above. Therefore, there would be no cumulative impacts to the health or safety of children.

## **5.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES FOR ALL ALTERNATIVES**

NEPA CEQ regulations require environmental analyses to identify “...any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented” (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Building construction material such as gravel and gasoline usage for construction equipment would constitute the consumption of non-renewable resources. Irretrievable resource commitments also involve the loss in value of an affected resource that cannot be restored as a result of the action.

The primary irretrievable impacts of implementation of the Proposed Action for any of the alternatives would involve the use of energy, labor, materials and funds, and the conversion of some lands from an undeveloped condition through the construction of buildings and facilities on the installation. Irretrievable impacts would occur as a result of construction, facility operation, and maintenance activities. Direct losses of biological productivity and the use of natural resources from these impacts would be inconsequential.

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## INDEX

---

- Accident Potential Zone (APZ), 2-6, 3-10, 3-37, 3-46, 3-66, 3-93, 3-119, 4-39, GLOSS-1
- Air Installation Compatible Use Zone (AICUZ), ES-10, ES-20, 2-58, 2-68, 3-28, 3-46, 4-156, GLOSS-1
- AP/1B, ES-8, 2-4, GLOSS-2
- Area of Concer (AOC), 3-105, 3-132
- Asbestos-Containing Material (ACM), ES-19, ES-20, 2-67, 2-68, 3-23, 3-50, 3-78, 3-104, 3-131, 4-22, 4-24, 4-26, 4-54, 4-56, 4-58, 4-85, 4-87, 4-90, 4-115, 4-116, 4-120, 4-147, 4-149, 4-152, 5-6, 5-14, 5-21, 5-29, 5-36
- Bird/Wildlife Aircraft Strike Hazard (BASH), ES-12, ES-20, 2-60, 2-68, 3-11, 3-12, 3-37, 3-38, 3-66, 3-67, 3-93, 3-94, 3-119, 3-120, 4-11, 4-12, 4-16, 4-40, 4-41, 4-46, 4-73, 4-78, 4-103, 4-108, 4-134, 4-139, 4-140, 6-2, 6-3, 6-4, 6-5, 6-9, GLOSS-2
- Boeing Michigan Aerospace Research Center (BOMARC), 3-45
- Boom/Probe and Drogue Refueling, ES-3, 1-4, GLOSS-2
- Central Accumulation Point (CAP), 3-23, 3-51, 3-79, 3-104, 3-132
- Command and Control (C2), 1-4, 1-5, 1-6, 1-8, 2-2
- Command, Control, Communications, and Computers (C4), ES-3, 1-4
- Conformity Determination, ES-11, 2-59, 2-69, 4-36, 4-38, 5-10, GLOSS-3
- Construction Emissions, ES-11, 2-59, 4-8, 4-9, 4-37, 4-38, 4-70, 4-71, 4-100, 4-101, 4-131, 4-132
- Consultation, 1-11, 3-46, 4-17, 4-26, 4-48, 4-58, 4-80, 4-81, 4-88, 4-110, 4-120, 4-141, 4-152, 5-13
- Council on Environmental Quality (CEQ), ES-8, 1-3, 1-9, 2-55, 2-69, 3-1, 4-155, 5-37, 6-6, GLOSS-3
- de minimis*, ES-11, 2-59, 2-69, 3-33, 3-61, 3-88, 3-114, 4-6, 4-35, 4-36, 4-37, 4-38, 4-68, 4-69, 4-70, 4-71, 4-98, 4-99, 4-100, 4-101, 4-129, 4-130, 4-131, 4-132, 5-9, 5-17, 5-25, 5-32
- Defense Logistics Agency (DLA), 3-51
- Disproportionate, ES-20, 2-68, 4-29, 4-61, 4-62, 4-91, 4-121, 4-122, 4-153, 4-154, 4-159, 5-15, 5-29
- Endangered, 3-44, 3-125, 4-79, 4-108, 4-139, 5-19, 5-27, 5-34, GLOSS-3, GLOSS-6
- Energy Independence and Security Act (EISA), 4-13, 4-42, 4-53, 4-75, 4-84, 4-105, 4-113, 4-136, 4-146, 5-12, 5-19, 5-27, 5-34
- Environmental Restoration Program (ERP), ES-18, ES-20, 2-66, 2-68, 3-24, 3-45, 3-51, 3-79, 3-105, 3-132, 4-26, 4-58, 4-88, 4-90, 4-118, 4-120, 4-150, 4-152, 5-29
- Federal Aviation Administration (FAA), ES-6, 1-7, 2-9, 2-57, 3-1, 3-11, 3-57, 3-66, 3-84, 3-93, 3-110, 3-119, 4-2, 4-11, 4-81, 6-7, 6-12, 6-13
- Federal Aviation Regulation (FAR), ES-6, ES-10, ES-15, ES-20, 2-57, 2-58, 2-64, 2-68, 3-1, 3-57, 3-84, 3-85, 3-86, 3-110, 3-111, 4-93, 4-94, 4-97, 4-111, 4-123, 4-124, 4-125, 4-128, 4-145, 4-156, 6-5, 6-6
- Federal Highway Administration (FHWA), 4-6, 4-34, 4-67, 4-97, 4-128, 6-8
- Federal Interagency Committee on Urban Noise (FICUN), 3-127, 4-52, 4-81
- Federal Register*, ES-1, 1-10, 1-12
- Floodplains, 3-16, 3-42, 3-72, 3-95, 3-98, 3-124, 4-15, 4-44, 4-77, 4-107, 4-138
- Green House Gas (GHG), 4-8, 4-9, 4-37, 4-38, 4-69, 4-70, 4-71, 4-99, 4-100, 4-131, 4-132, 5-2, 5-10, 5-17, 5-25, 5-32
- Groundwater, 3-14, 3-16, 3-24, 3-42, 3-51, 3-71, 3-76, 3-79, 3-98, 3-102, 3-105, 3-122, 3-129, 3-132, 4-13, 4-26, 4-44, 4-58, 4-77, 4-88, 4-107, 4-118, 4-138, 4-152, 5-4

- Hazardous Air Pollutant (HAP), ES-11, ES-20, 2-59, 2-68, 3-9, 3-35, 3-64, 3-92, 3-117, 4-9, 4-38, 4-71, 4-101, 4-132
- Integrated Noise Model (INM), 3-1, 3-57, 3-84, 3-110, 4-63, 4-92, 4-123, 4-124, 6-12, 6-13, GLOSS-4
- Lead-Based Paint (LBP), ES-19, ES-20, 2-67, 2-68, 3-23, 3-50, 3-78, 3-104, 3-131, 4-22, 4-24, 4-26, 4-54, 4-56, 4-58, 4-85, 4-87, 4-90, 4-115, 4-116, 4-120, 4-147, 4-149, 4-152, 5-6, 5-14, 5-21, 5-29, 5-36
- Leadership in Energy and Environmental Design (LEED), 2-14, 2-23, 2-31, 2-44, 2-51, 4-21, 4-53, 4-84, 4-114, 4-146, 5-6, 5-14, 5-21, 5-28, 5-35
- Low Impact Development (LID), 4-13, 4-42, 4-75, 4-105, 4-136, 5-12, 5-19, 5-26, 5-27, 5-33, 5-34
- Low-Income, ES-20, 2-68, 3-27, 3-54, 3-55, 3-56, 3-82, 3-108, 3-109, 3-135, 3-136, 4-29, 4-61, 4-62, 4-91, 4-121, 4-122, 4-153, 4-159, 5-7, 5-15, 5-21, 5-29, 5-36, 6-15, 6-16, GLOSS-3
- Migratory Bird Treaty Act (MBTA), 3-16, 3-43, 3-72, 3-99, 3-124, 4-15, 4-45, 4-78, 4-108, 4-139
- Military Operations Area (MOA), 2-11, 2-30, 2-41, 2-50, 3-121, GLOSS-4, GLOSS-6
- Minority, ES-20, 2-68, 3-27, 3-54, 3-55, 3-56, 3-82, 3-108, 3-109, 3-135, 3-136, 4-29, 4-61, 4-62, 4-91, 4-121, 4-122, 4-153, 4-159, 5-7, 5-15, 5-21, 5-29, 5-36, 6-15, GLOSS-3
- National Ambient Air Quality Standards (NAAQS), ES-11, 2-59, 3-5, 3-8, 3-31, 3-33, 3-34, 3-60, 3-63, 3-88, 3-91, 3-114, 3-117, 4-6, 4-132, GLOSS-4
- National Defense Authorization Act (NDAA), 1-3, 4-155, 5-30, 5-31, 5-33, 5-36
- National Environmental Policy Act (NEPA), ES-4, ES-7, ES-8, ES-9, 1-3, 1-9, 1-10, 1-11, 1-12, 2-2, 2-4, 2-9, 2-18, 2-28, 2-37, 2-48, 2-55, 3-1, 3-93, 4-155, 5-1, 5-8, 5-16, 5-23, 5-30, 5-37, 6-6, 7-2, 7-6, GLOSS-4
- National Pollutant Discharge Elimination System (NPDES), 3-71, 4-74, 4-104, 5-3, 5-4, 5-11, 5-12, 5-18, 5-19, 5-26, 5-27, 5-33, 5-34
- National Register of Historic Places (NRHP), ES-14, ES-20, 2-62, 2-68, 2-69, 3-17, 3-45, 3-73, 3-100, 3-126, 4-17, 4-18, 4-47, 4-48, 4-49, 4-80, 4-81, 4-109, 4-110, 4-111, 4-140, 4-141, 4-142, 4-157, 5-5, 5-13, 5-20, 5-27, 5-34
- Natural Resources Conservation Service (NRCS), 3-13, 3-39, 3-40, 3-68, 3-69, 3-95, 3-96, 3-121, 4-12, 4-41, 4-74, 4-104, 4-135, 6-11
- Night Vision Imaging System (NVIS), ES-3, 1-4, 1-6, 1-7
- NOISEMAP, 3-1, 3-2, 3-28, 4-1, 4-30, 6-8, GLOSS-5
- Notice of Availability (NOA), ES-1, 1-12
- Occupational Safety and Health Administration (OSHA), 4-24, 4-56, 4-87, 4-117, 4-149
- Operational Emissions, ES-11, 2-59, 2-69, 4-6, 4-6, 4-7, 4-35, 4-36, 4-38, 4-68, 4-69, 4-98, 4-99, 4-101, 4-129, 4-130
- Prevention of Significant Deterioration (PSD), ES-11, ES-20, 2-59, 2-68, 4-6, 4-7, 4-8, 4-9, 4-35, 4-36, 4-37, 4-38, 4-68, 4-69, 4-70, 4-71, 4-98, 4-99, 4-100, 4-101, 4-129, 4-130, 4-131, 4-132, 5-2, 5-9, 5-17, 5-25, 5-32
- Public Involvement, 1-10
- Public Scoping, ES-1
- Record of Decision (ROD), 1-12, 2-69, 2-70
- Runway Protection Zone (RPZ), 3-10, 3-11, 3-19, 3-37, 3-66, 3-74, 3-93, 3-100, 3-119, 3-127, 4-9, 4-71, 4-101, 4-132
- Satellite Accumulation Point (SAP), 3-23, 3-51, 3-78, 3-79, 3-104, 3-132
- Secretary of the Air Force, ES-1, ES-4, 1-1, 1-12, 2-4, 2-5, 2-6
- Selection Criteria, ES-4, 2-4

Special Status, ES-13, 1-13, 2-61, 3-17, 3-44, 3-73, 3-99, 3-125, 4-16, 4-46, 4-79, 4-108, 4-109, 4-139, 5-4, GLOSS-6

Special Use Airspace (SUA), ES-9, 2-55, 4-155

State Historic Preservation Office(r) (SHPO), ES-14, ES-20, 2-62, 2-68, 2-69, 3-17, 3-18, 3-45, 3-73, 3-100, 3-126, 4-17, 4-18, 4-48, 4-49, 4-80, 4-81, 4-109, 4-110, 4-141, 4-142, 5-5, 5-13, 5-20, 5-27, GLOSS-6

State Implementation Plan (SIP), ES-11, ES-20, 2-6, 2-59, 2-68, 2-69, 4-156, 5-10

Stormwater, 3-14, 3-21, 3-24, 3-42, 3-47, 3-51, 3-71, 3-76, 3-79, 3-98, 3-102, 3-104, 3-122, 3-129, 3-132, 4-13, 4-21, 4-42, 4-53, 4-75, 4-83, 4-84, 4-104, 4-105, 4-113, 4-136, 4-145, 4-146, 5-3, 5-6, 5-11, 5-12, 5-14, 5-18, 5-19, 5-21, 5-26, 5-28, 5-33, 5-35, 6-1, 6-12, 6-14

Stratotanker, ES-1, 1-3, 1-6

Threatened, 3-44, 3-99, 4-79, 4-108, 4-139, 5-19, 5-27, 5-34, GLOSS-6

United States Army Corps of Engineers (USACE), 3-42

United States Department of Agriculture (USDA), 3-13, 3-39, 3-67, 3-68, 3-95, 3-121, 6-5, 6-16

United States Environmental Protection Agency (USEPA), 3-6, 3-7, 3-8, 3-9, 3-14, 3-23, 3-32, 3-33, 3-34, 3-35, 3-40, 3-42, 3-51, 3-61, 3-62, 3-63, 3-64, 3-69, 3-71, 3-78, 3-88, 3-89, 3-90, 3-91, 3-98, 3-104, 3-114, 3-115, 3-116, 3-117, 3-121, 3-122, 3-131, 4-22, 4-54, 4-74, 4-84, 4-114, 4-146, 6-16

United States Fish and Wildlife Service (USFWS), 3-17, 3-74, 3-125, 6-17, GLOSS-6

United States Geological Survey (USGS), 3-42, 3-71, 3-98, 3-122, 6-17

Wetland, ES-13, 2-61, 3-17, 3-43, 3-44, 3-73, 3-74, 3-99, 3-125, 4-16, 4-46, 4-47, 4-79, 4-108, 4-109, 4-140, 5-4, 5-12, 5-19, 5-27, 5-34, 6-11, 6-17, GLOSS-7

Wildlife, ES-13, 2-61, 3-11, 3-12, 3-16, 3-38, 3-43, 3-67, 3-72, 3-94, 3-99, 3-120, 3-124, 4-11, 4-15, 4-16, 4-45, 4-47, 4-78, 4-79, 4-108, 4-109, 4-139, 4-140, 5-4, 5-12, 5-19, 5-27, 5-34, GLOSS-2, GLOSS-3, GLOSS-6

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## **LIST OF REPOSITORIES**

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Topeka and Shawnee County Public Library  
1515 SW 10th St  
Topeka, KS 66604

Carbondale City Library  
235 Main St  
Carbondale, KS 66414

Burlington County Library  
5 Pioneer Blvd  
Westampton, NJ 08060

Pemberton Community Library  
16 Broadway  
Browns Mills, NJ 08015  
609-893-8262

Mr. Scott Campbell  
Langdon Public Library  
328 Nimble Hill Rd  
Newington, NH 03801

Mr. Michael Huxtable  
Portsmouth Public Library  
175 Parrott Ave  
Portsmouth, NH 03801

Moon Township Public Library  
1700 Beaver Grade Rd  
Moon Township, PA 15108

Robert Morris University Library  
6001 University Blvd  
Moon Township, PA 15108

Metropolitan Library  
South High Branch  
3540 S. High Street  
Columbus, OH 43207



Metropolitan Library  
Southeast Branch  
3980 S Hamilton Rd  
Groveport, OH 43125

## GLOSSARY

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***Above Ground Level (AGL):*** Altitude expressed in feet measured above the ground surface.

***Accident Potential Zone (APZ):*** An area defined near a runway where accidents are likely to occur if they occur. APZs are normally 3,000 feet wide and extend 15,000 feet from the end of the runway but can curve with the flight tracks.

***Air Refueling Tracks:*** Published linear routes identified on air navigation charts that define the flight path used by aircraft when refueling other aircraft. For fixed wing aircraft, this generally occurs above 10,000 feet above mean sea level.

***Air Force Instruction (AFI):*** AFIs implementing United States laws and regulations, and providing policy for United States Air Force personnel and activities.

***Air Installation Compatible Use Zone (AICUZ):*** A land-use-planning program, used by the military, to protect the health, safety, and welfare of those living near military airfields while preserving the defense flying mission. AICUZ presents noise zones and Accident Potential Zones for military airfields and recommendations for compatible land use.

***Air Mobility Command (AMC):*** AMC, a major command with headquarters at Scott Air Force Base, Illinois, was created June 1, 1992. AMC provides America's Global Reach. This rapid, flexible, and responsive air mobility promotes stability in regions by keeping America's capability and character highly visible.

***Air National Guard (ANG):*** The ANG is administered by the National Guard Bureau, a joint bureau of the departments of the Army and United States Air Force, located in the Pentagon, Washington, D.C. It is one of the seven Reserve components of the United States armed forces that augments the active components in the performance of their missions.

***Air Quality Control Region (AQCR):*** An administrative unit for monitoring and controlling air quality in a specific region.

***Air Traffic Control Assigned Airspace (ATCAA):*** Airspace of defined vertical and lateral limits, assigned by Air Traffic Control, for the purpose of providing air traffic separation between the specified activities being conducted within the assigned airspace and other Instrument Flight Rule air traffic.

***Anchors:*** Air refueling tracks that go in a race-track shape (i.e., loop).

**AP/1B:** AP/1B provides textual and graphic descriptions and operating instructions for all military training routes (instrument route, visual route, slow route) and refueling tracks/anchors. Complete and more comprehensive information relative to policy and procedures for instrument routes and visual routes is published in Federal Aviation Administration Handbook 7610.4 (Special Military Operation) which is agreed to by the Department of Defense and therefore directive for all military flight operations. AP/1B is the official source of route data for military users.

**Area-Wide Emission Sources:** Area-wide sources of pollution are those where the emissions are spread over a wide area, such as consumer products, fireplaces, road dust, and farming operations.

**Average Annual Flying Day:** Average Annual Flying Day represents the average number of aircraft operations flown on a typical flying day based on airport activity and operational data which indicates, on an annual average-daily basis, the number of aircraft, by type of aircraft. An average annual day is a user-defined best representation of the typical long-term average conditions for an airport (typically based on 365 flying days per year). The average conditions include the number and type of operations, routing structure, runway configuration, aircraft weight, temperature and wind.

**Average Sortie Duration (ASD):** A flying wing's total number of flying hours divided by the number of sorties that must be flown.

**Backup Aerospace Vehicle Inventory (BAI):** BAI includes aircraft used as substitutes for Primary Aerospace Vehicles Authorized undergoing maintenance or otherwise unable to fly.

**Beddown:** The permanent basing of aircraft at a new installation.

**Bird/Wildlife-Aircraft Strike Hazard (BASH):** A United States Air Force program to reduce the possibilities of bird or wildlife collisions with aircraft.

**Boom/Probe and Drogue Refueling:** Probe and drogue refueling employs a flexible hose that trails from the tanker aircraft. The drogue is a fitting resembling a windsock, and is attached with a valve to a flexible hose.

**Clean Air Act (CAA):** This Act empowered the United States Environmental Protection Agency to establish standards for common pollutants that represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect public health and safety.

***Council on Environmental Quality (CEQ):*** The Council is within the Executive Office of the President and is composed of three members appointed by the President, subject to approval by the Senate. Members are to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs of the nation; and to formulate and recommend national policies to promote the improvement of quality of the environment.

***Day-Night Average Sound Level (DNL):*** Day-Night Average Sound Level is a noise metric combining the levels and durations of noise events and the number of events over an extended time period. It is a cumulative average computed over a 24-hour period to represent total noise exposure. DNL also accounts for more intrusive nighttime noise, adding a 10 decibel penalty for sounds after 10:00 p.m. and before 7:00 a.m. DNL is the Federal Aviation Administration's primary noise metric. Federal Aviation Administration Order 1050.1E defines DNL as the yearly day/night average sound level.

***Decibel (dB):*** A sound measurement unit.

***De Minimis Threshold:*** The minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas.

***Endangered Species Act (ESA):*** The Endangered Species Act of 1973 defined the term "endangered species" to mean any species (including any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature) that is in danger of extinction throughout all or a significant portion of its range.

***Environmental Justice:*** Pursuant to Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, review must be made as to whether a federal program, policy, or action presents a disproportionately high and adverse human health or environmental effect on minority and/or low-income populations.

***Environmental Night:*** The period between 10 p.m. and 7 a.m. when 10 decibels is added to aircraft noise levels due to increased sensitivity to noise at night.

***Flight Level (FL):*** A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, FL 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

***Instrument Flight Rule (IFR):*** A standard set of rules that all pilots, civilian and military, must follow when operating under flight conditions that are more stringent than Visual Flight Rule. These conditions include operating an aircraft in reduced visibility, operating above certain

altitudes prescribed by Federal Aviation Administration regulations, and operating in some locations like major civilian airports. Air traffic control agencies ensure separation of all aircraft operating under IFR.

***Integrated Noise Model (INM):*** The INM is the preferred model typically used for Federal Aviation Regulations Part 150 noise compatibility planning and for Federal Aviation Administration Order 1050 environmental assessments and environmental impact statements. INM is a computer model that evaluates aircraft noise impacts in the vicinity of airports. It is developed based on the algorithm and framework from SAE AIR 1845 standard, which used Noise-Power-Distance data to estimate noise accounting for specific operation mode, thrust setting, and source-receiver geometry, acoustic directivity and other environmental factors. The INM can output either noise contours for an area or noise level at pre-selected locations. The noise output can be either exposure-based, maximum-level-based, or time-based.

***Loess:*** An unstratified, usually buff to yellowish brown, loamy deposit believed to be chiefly deposited by the wind.

***Main Operating Base:*** A permanently manned, well-protected base with robust infrastructure. Main operating bases are characterized by command and control structures, enduring family support facilities, and strengthened force protection measures.

***Mean Sea Level (MSL):*** Altitude or elevation expressed in feet referenced to the average elevation of the sea. For example, a field elevation of 26 feet above mean sea level would be expressed as “26 feet MSL” and an aircraft altitude of 1,200 feet above mean sea level would be expressed as “1,200 feet MSL.”

***Military Operations Area (MOA):*** A MOA is airspace designated outside of Class A airspace (i.e., below 18,000 feet mean sea level) to separate or segregate certain non-hazardous military activities from Instrument Flight Rule (IFR) traffic and to identify for Visual Flight Rule (VFR) traffic where these activities are conducted.

***Mobile Sources:*** Mobile sources include cars and light trucks, heavy trucks and buses, nonroad engines, equipment, and vehicles.

***National Ambient Air Quality Standards (NAAQS):*** NAAQS are established by the United States Environmental Protection Agency for criteria pollutants that represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect public health and safety.

***National Environmental Policy Act (NEPA):*** The National Environmental Policy Act of 1969 directs federal agencies to take environmental factors into consideration in their decisions.

**National Guard Bureau (NGB):** The NGB, both a staff and operating agency, administers the federal functions of the Army and the Air National Guard. As a staff agency, the National Guard Bureau participates with the Army and Air staffs in developing and coordinating programs that directly affect the National Guard. As an operating agency, the National Guard Bureau formulates and administers the programs for training, development, and maintenance of the Army National Guard and Air National Guard and acts as the channel of communication between the Army, Air Force, and the 54 states and territories where National Guard units are located.

**National Historic Preservation Act (NHPA):** The NHPA of 1966, as amended, established a program for the preservation of historic properties throughout the United States.

**Nautical Mile:** A distance unit equal to 1.14 statute miles.

**NOISEMAP:** NOISEMAP is a group of computer programs developed over a number of years by the U.S. Air Force for prediction of noise exposures in the vicinity of a military installation. NOISEMAP is the primary computer model used by Department of Defense for evaluating military fixed-wing aircraft noise. It contains a suite of computer programs for prediction of noise exposure from aircraft flight, maintenance, and ground runup operations. NOISEMAP output includes noise contours, noise levels at preselected locations, and other supplemental metrics to assist users in analyzing impacts resulting from aircraft noise in the airfield environment.

**Operation:** An operation can apply to both airfield and airspace activities. At an airfield, an operation consists of a single action such as a take-off, or a landing (i.e., two operations). For airspace and ranges, an operation consists of the use of one airspace unit (e.g., Military Operations Area, Air Refueling Track) by one aircraft. Each time a single aircraft flies into a different airspace unit, one operation is counted. During a single sortie, an aircraft could fly in several airspace units, and conduct a number of operations; therefore, the number of operations exceeds the number of sorties.

**Prime Farmland:** Prime farmlands are designations assigned by the U.S. Department of Agriculture. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. The land is also used as cropland, pastureland, rangeland, forest land, or other land, but cannot be used as urban built-up land or water.

**Power Setting:** The power or thrust output of an engine in terms of kilonewtons thrust for turbojet and turbofan engines or shaft power in terms of kilowatts for turboprop engines.

**Primary Aerospace Vehicles Authorized (PAA):** PAA consists of the aircraft authorized and assigned to perform an Air National Guard wing's missions.

**Scoping:** A process of identifying the main issues of concern at an early stage in planning, in order to discover any alternatives and aid in site selection.

**Sortie:** A sortie refers to a single military aircraft from take-off through final landing, and everything that might be conducted during that flying mission. A sortie will always include more than one operation.

**Sortie Operation:** A sortie operation is counted each time a single aircraft enters Special Activity Airspace such as an Air Refueling Route or Military Operations Area (MOA).

**Sound Exposure Level (SEL):** SEL accounts for both the maximum sound level and the length of time a sound lasts. It provides a measure of the total sound exposure for an entire event. Federal Aviation Administration Order 1050.1E defines SEL as a single event metric that takes into account both the noise level and duration of the event and referenced to a standard duration of one second.

**Special Status Species:** *Special Status Species* are defined as those plant and animal species listed as endangered, threatened, and species proposed for listing by the United States Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA), and by state agencies. The federal ESA protects federally listed endangered and threatened plant and animal species. Critical habitat is a term defined and used in the ESA. It is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Federally identified candidate species (species proposed for listing) are not protected under law; however, these species could become listed, and therefore, protected at any time. Their consideration early in the planning process may avoid future conflicts that could otherwise occur. Additionally, the corresponding state regulatory agencies (Kansas Department of Wildlife, Parks and Tourism; New Jersey Division of Fish and Wildlife; New Hampshire Fish and Game; Pennsylvania Department of Conservation and Natural Resources; and Ohio Department of Natural Resources) protect state-listed plant and animal species through State fish and wildlife and administrative codes.

**State Historic Preservation Office (SHPO):** State department responsible for assigning protected status for cultural and historic resources.

**Stationary Sources:** A place or object from which pollutants are released and which does not move around. Stationary sources include power plants, gas stations, incinerators, houses, etc.



***Traditional/Cultural Resource:*** Cultural and traditional resources are any prehistoric or historic district, site or building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes.

***Visual Flight Rule (VFR):*** A standard set of rules that all pilots, both civilian and military, must follow when not operating under Instrument Flight Rule. These rules require that pilots remain clear of clouds and avoid other aircraft. See Instrument Flight Rule.

***Warning Areas:*** A warning area is airspace of defined dimensions, extending from 3 nautical miles outward from the coast of the United States, containing activity that may be hazardous to non-participating aircraft. The purpose of such areas is to warn non-participating pilots of the potential danger. A warning area may be located over domestic or international waters or both. A warning area may be located over domestic or international waters or both. The airspace is designated with a “W” followed by a number (e.g., W-237).

***Wetland, Jurisdictional:*** A jurisdictional wetland is a wetland that meets all three United States Army Corps of Engineers’ criterion for jurisdictional status: appropriate hydrologic regime, hydric soils, and facultative to obligate wetland plant communities under normal growing conditions.

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**Final  
Environmental Impact Statement  
Second Main Operating Base  
KC-46A Beddown at  
Alternative Air National  
Guard Installations**



June 2014



## Cover Sheet

### ***FINAL ENVIRONMENTAL IMPACT STATEMENT FOR THE SECOND MAIN OPERATING BASE (MOB 2) KC-46A BEDDOWN AT ALTERNATIVE AIR NATIONAL GUARD INSTALLATIONS***

- a. *Responsible and Cooperating Agencies:* United States Air Force, National Guard Bureau (Responsible Agencies); there are no Cooperating Agencies.
- b. *Title of Action:* Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations Environmental Impact Statement
- c. *Comments and Inquiries:* Anne Rowe, NGB/A7AM, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157, (240) 612-8859.
- d. *Designation:* Final Environmental Impact Statement (EIS)
- e. *Abstract:* This Final EIS has been prepared in accordance with the National Environmental Policy Act (NEPA). The public and agency scoping process resulted in the analysis of the following environmental resources: noise, air quality, safety, soils and water, biological resources, cultural resources, land use, infrastructure and transportation, hazardous materials and wastes, socioeconomics, and environmental justice and the protection of children. The Secretary of the Air Force proposes to beddown KC-46A aircraft for MOB 2 at one of five alternative locations. The goal of KC-46A basing and fielding is to continue to provide optimum Combatant Commander support and to efficiently meet regional and global receiver demands while replacing the KC-135 fleet. This action would involve the beddown of one KC-46A squadron consisting of 12 Primary Aerospace Vehicles Authorized (PAA), and establishing a KC-46A Main Operating Base (MOB). Concurrent with the beddown of the 12 KC-46A, 12 existing KC-135 aircraft would be retired out of the Air National Guard (ANG) fleet. The existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the United States Air Force (USAF) inventory, depending on the age and maintenance status of each aircraft. Separate documentation would be prepared if the KC-135 aircraft are relocated to another installation. The beddown of the MOB 2 KC-46A would follow the Total Force Integration (TFI) concept that was enacted into law through the passage of the 2008 Defense Authorization Act, pairing two USAF component units (host and associate) together to operate as one. In support of TFI, an active duty associate unit would be integrated with ANG personnel and equipment under any of the action alternatives, enabling joint training and execution of missions using ANG-assigned aircraft. The ANG host unit would be assigned principal responsibility of the physical resources for mission accomplishment (aircraft, equipment, facilities) and the active duty associate unit would share those resources. Five alternative ANG locations were selected for this beddown:
  - Forbes Air National Guard Station (ANGS), Kansas;
  - Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
  - Pease ANGS, New Hampshire;
  - Pittsburgh ANGS, Pennsylvania; and,
  - Rickenbacker ANGS, Ohio.

The USAF has identified Pease ANGS as the preferred alternative.



## TABLE OF CONTENTS

### VOLUME I

<b>ACRONYMS AND ABBREVIATIONS.....</b>	<b>xix</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>CHAPTER 1        PURPOSE AND NEED FOR THE PROPOSED ACTION .....</b>	<b>1-1</b>
1.1    INTRODUCTION .....	1-1
1.2    PURPOSE AND NEED FOR THE PROPOSED ACTION .....	1-3
1.2.1    Purpose of Action .....	1-3
1.2.2    Need for Action.....	1-5
1.3    BACKGROUND OF THE KC-46A .....	1-5
1.3.1    Aircraft Characteristics .....	1-5
1.3.2    Aircraft Characteristics of the KC-135 .....	1-6
1.3.3    Aircraft Characteristics of the KC-46A .....	1-7
1.3.4    Training Requirements.....	1-8
1.4    THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS .....	1-9
1.5    PUBLIC INVOLVEMENT/ENVIRONMENTAL COORDINATION .....	1-10
1.6    LEAD AND COOPERATING AGENCIES .....	1-13
1.7    ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT .....	1-13
<b>CHAPTER 2        DESCRIPTION OF THE PROPOSED ACTION AND                          ALTERNATIVES .....</b>	<b>2-1</b>
2.1    PROPOSED ACTION .....	2-1
2.1.1    Overview of the Proposed Action.....	2-1
2.1.2    Requirements of the Proposed Action .....	2-1
2.1.2.1    Aircraft Beddown/Transition .....	2-1
2.1.2.2    Facility and Infrastructure Requirements.....	2-2
2.1.2.3    Personnel Changes .....	2-3
2.1.2.4    KC-46A Operations .....	2-3
2.2    NARROWING PROCESS FOR ALTERNATIVE BASES.....	2-4
2.3    ACTION ALTERNATIVES CARRIED FORWARD .....	2-7
2.3.1    Alternative #1 – Forbes Air National Guard Station .....	2-7
2.3.1.1    Background .....	2-7
2.3.1.2    Mission.....	2-7
2.3.1.3    Aircraft Conversion.....	2-9
2.3.1.4    Airfield Operations.....	2-9
2.3.1.5    Airspace Operations .....	2-10
2.3.1.6    Construction Required .....	2-12
2.3.1.7    Personnel Changes .....	2-16
2.3.2    Alternative #2 – Joint Base McGuire-Dix-Lakehurst.....	2-16
2.3.2.1    Background .....	2-16
2.3.2.2    Mission.....	2-18
2.3.2.3    Aircraft Conversion.....	2-18
2.3.2.4    Airfield Operations.....	2-18



2.3.2.5	Airspace Operations .....	2-19
2.3.2.6	Construction Required .....	2-20
2.3.2.7	Personnel Changes .....	2-26
2.3.3	Alternative #3 – Pease Air National Guard Station .....	2-26
2.3.3.1	Background .....	2-26
2.3.3.2	Mission .....	2-28
2.3.3.3	Aircraft Conversion.....	2-28
2.3.3.4	Airfield Operations.....	2-28
2.3.3.5	Airspace Operations .....	2-29
2.3.3.6	Construction Required .....	2-31
2.3.3.7	Personnel Changes .....	2-36
2.3.4	Alternative #4 – Pittsburgh Air National Guard Station.....	2-37
2.3.4.1	Background .....	2-37
2.3.4.2	Mission.....	2-37
2.3.4.3	Aircraft Conversion.....	2-37
2.3.4.4	Airfield Operations.....	2-39
2.3.4.5	Airspace Operations .....	2-40
2.3.4.6	Construction Required .....	2-40
2.3.4.7	Personnel Changes .....	2-46
2.3.5	Alternative #5 – Rickenbacker Air National Guard Station .....	2-46
2.3.5.1	Background .....	2-46
2.3.5.2	Mission .....	2-48
2.3.5.3	Aircraft Conversion.....	2-48
2.3.5.4	Airfield Operations.....	2-48
2.3.5.5	Airspace Operations .....	2-49
2.3.5.6	Construction Required .....	2-50
2.3.5.7	Personnel Changes .....	2-54
2.4	NO ACTION ALTERNATIVE.....	2-55
2.5	IDENTIFICATION OF PREFERRED ALTERNATIVE .....	2-55
2.6	SUMMARY OF ANTICIPATED IMPACTS AMONG ALTERNATIVES .....	2-55
2.7	MITIGATION .....	2-69
<b>CHAPTER 3</b>	<b>EXISTING CONDITIONS .....</b>	<b>3-1</b>
3.1	FORBES AIR NATIONAL GUARD STATION .....	3-1
3.1.1	Noise .....	3-1
3.1.1.1	Baseline Operations .....	3-2
3.1.1.2	Runway and Flight Profiles.....	3-3
3.1.1.3	Existing Noise Environment .....	3-3
3.1.1.4	Forbes Field Airport Noise Abatement Procedures .....	3-5
3.1.1.5	Forbes Air National Guard Station Noise Complaint Procedures .....	3-5
3.1.2	Air Quality .....	3-5
3.1.2.1	Regulatory Setting.....	3-5
3.1.2.2	Climate and Meteorology.....	3-7
3.1.2.3	Regional and Local Air Pollutant Sources .....	3-7
3.1.2.4	Baseline Air Quality.....	3-8

	3.1.2.5	190 <sup>th</sup> Air Refueling Wing Emissions .....	3-9
3.1.3	Safety .....		3-10
	3.1.3.1	Ground Safety .....	3-11
	3.1.3.2	Flight Safety .....	3-12
3.1.4	Soils and Water .....		3-13
	3.1.4.1	Soils.....	3-13
	3.1.4.2	Surface Water.....	3-14
	3.1.4.3	Groundwater.....	3-14
	3.1.4.4	Floodplains.....	3-16
3.1.5	Biological Resources .....		3-16
	3.1.5.1	Vegetation .....	3-16
	3.1.5.2	Wildlife .....	3-16
	3.1.5.3	Special Status Species .....	3-17
	3.1.5.4	Wetlands.....	3-17
3.1.6	Cultural Resources .....		3-17
	3.1.6.1	Archaeological Resources.....	3-17
	3.1.6.2	Architectural Resources .....	3-17
	3.1.6.3	Traditional Resources .....	3-18
3.1.7	Land Use .....		3-18
3.1.8	Infrastructure and Transportation .....		3-21
	3.1.8.1	Potable Water System .....	3-21
	3.1.8.2	Wastewater .....	3-21
	3.1.8.3	Stormwater .....	3-21
	3.1.8.4	Electrical and Natural Gas Systems .....	3-21
	3.1.8.5	Solid Waste Management .....	3-22
	3.1.8.6	Transportation .....	3-22
3.1.9	Hazardous Materials and Waste.....		3-22
	3.1.9.1	Hazardous Materials.....	3-22
	3.1.9.2	Hazardous Waste Management.....	3-23
	3.1.9.3	Environmental Restoration Program.....	3-24
3.1.10	Socioeconomics .....		3-24
	3.1.10.1	Population and Employment.....	3-24
	3.1.10.2	Schools .....	3-26
	3.1.10.3	Housing .....	3-26
3.1.11	Environmental Justice and the Protection of Children .....		3-27
	3.1.11.1	Minority and Low-Income Populations .....	3-27
	3.1.11.2	Protection of Children.....	3-27
3.2	JOINT BASE MCGUIRE-DIX-LAKEHURST .....		3-28
	3.2.1	Noise .....	3-28
	3.2.1.1	Baseline Operations .....	3-28
	3.2.1.2	Runway and Flight Profiles.....	3-29
	3.2.1.3	Existing Noise Environment .....	3-29
	3.2.1.4	Joint Base McGuire-Dix-Lakehurst Noise Abatement Procedures .....	3-31
	3.2.1.5	Joint Base McGuire-Dix-Lakehurst Noise Complaints Procedures .....	3-31

3.2.2	Air Quality .....	3-31
3.2.2.1	Regulatory Setting.....	3-31
3.2.2.2	Climate and Meteorology.....	3-33
3.2.2.3	Regional and Local Air Pollutant Sources .....	3-34
3.2.2.4	Baseline Air Quality.....	3-34
3.2.2.5	108 <sup>th</sup> Wing Emissions .....	3-35
3.2.3	Safety .....	3-37
3.2.3.1	Ground Safety .....	3-37
3.2.3.2	Flight Safety .....	3-38
3.2.4	Soils and Water .....	3-39
3.2.4.1	Soils.....	3-39
3.2.4.2	Surface Water.....	3-40
3.2.4.3	Groundwater.....	3-42
3.2.4.4	Floodplains.....	3-42
3.2.5	Biological Resources .....	3-43
3.2.5.1	Vegetation .....	3-43
3.2.5.2	Wildlife .....	3-43
3.2.5.3	Special Status Species .....	3-44
3.2.5.4	Wetlands.....	3-44
3.2.6	Cultural Resources .....	3-45
3.2.6.1	Archaeological Resources.....	3-45
3.2.6.2	Architectural Resources .....	3-45
3.2.6.3	Traditional Resources .....	3-46
3.2.7	Land Use .....	3-46
3.2.8	Infrastructure and Transportation .....	3-47
3.2.8.1	Potable Water System .....	3-47
3.2.8.2	Wastewater.....	3-47
3.2.8.3	Stormwater .....	3-47
3.2.8.4	Electrical and Natural Gas Systems .....	3-49
3.2.8.5	Solid Waste Management .....	3-49
3.2.8.6	Transportation .....	3-49
3.2.9	Hazardous Materials and Waste.....	3-50
3.2.9.1	Hazardous Materials.....	3-50
3.2.9.2	Hazardous Waste Management.....	3-50
3.2.9.3	Environmental Restoration Program.....	3-51
3.2.10	Socioeconomics .....	3-53
3.2.10.1	Population and Employment .....	3-53
3.2.10.2	Schools .....	3-54
3.2.10.3	Housing .....	3-54
3.2.11	Environmental Justice and the Protection of Children .....	3-54
3.2.11.1	Minority and Low-Income Populations .....	3-54
3.2.11.2	Protection of Children .....	3-56
3.3	PEASE AIR NATIONAL GUARD STATION .....	3-57
3.3.1	Noise .....	3-57
3.3.1.1	Baseline Operations .....	3-57
3.3.1.2	Runway and Flight Profiles.....	3-58

3.3.1.3	Existing Noise Environment .....	3-58
3.3.1.4	Portsmouth International Airport Noise Abatement Procedures .....	3-60
3.3.1.5	Pease Air National Guard Station Noise Complaints Procedures .....	3-60
3.3.2	Air Quality .....	3-60
3.3.2.1	Regulatory Setting.....	3-60
3.3.2.2	Climate and Meteorology.....	3-62
3.3.2.3	Regional and Local Air Pollutant Sources .....	3-62
3.3.2.4	Baseline Air Quality.....	3-63
3.3.2.5	157 <sup>th</sup> Air Refueling Wing Emissions .....	3-64
3.3.3	Safety .....	3-66
3.3.3.1	Ground Safety .....	3-66
3.3.3.2	Flight Safety .....	3-67
3.3.4	Soils and Water .....	3-68
3.3.4.1	Soils.....	3-68
3.3.4.2	Surface Water.....	3-69
3.3.4.3	Groundwater.....	3-71
3.3.4.4	Floodplains.....	3-72
3.3.5	Biological Resources .....	3-72
3.3.5.1	Vegetation .....	3-72
3.3.5.2	Wildlife .....	3-72
3.3.5.3	Special Status Species.....	3-73
3.3.5.4	Wetlands.....	3-73
3.3.6	Cultural Resources .....	3-73
3.3.6.1	Archaeological Resources.....	3-73
3.3.6.2	Architectural Resources .....	3-73
3.3.6.3	Traditional Resources .....	3-73
3.3.7	Land Use .....	3-74
3.3.8	Infrastructure and Transportation .....	3-76
3.3.8.1	Potable Water System .....	3-76
3.3.8.2	Wastewater .....	3-76
3.3.8.3	Stormwater .....	3-76
3.3.8.4	Electrical and Natural Gas Systems .....	3-76
3.3.8.5	Solid Waste Management .....	3-77
3.3.8.6	Transportation .....	3-77
3.3.9	Hazardous Materials and Waste.....	3-77
3.3.9.1	Hazardous Materials.....	3-77
3.3.9.2	Hazardous Waste Management.....	3-78
3.3.9.3	Environmental Restoration Program.....	3-79
3.3.10	Socioeconomics .....	3-81
3.3.10.1	Population and Employment.....	3-81
3.3.10.2	Schools .....	3-82
3.3.10.3	Housing .....	3-82
3.3.11	Environmental Justice and the Protection of Children .....	3-82
3.3.11.1	Minority and Low-Income Populations .....	3-82

	3.3.11.2	Protection of Children .....	3-83
3.4		PITTSBURGH AIR NATIONAL GUARD STATION .....	3-84
	3.4.1	Noise .....	3-84
	3.4.1.1	Baseline Operations .....	3-84
	3.4.1.2	Runway and Flight Profiles.....	3-85
	3.4.1.3	Existing Noise Environment .....	3-86
	3.4.1.4	Pittsburgh International Airport Noise Abatement Procedures .....	3-86
	3.4.1.5	Pittsburgh International Airport Noise Complaints Procedures .....	3-86
	3.4.2	Air Quality .....	3-88
	3.4.2.1	Regulatory Setting.....	3-88
	3.4.2.2	Climate and Meteorology.....	3-89
	3.4.2.3	Regional and Local Air Pollutant Sources .....	3-90
	3.4.2.4	Baseline Air Quality.....	3-90
	3.4.2.5	171 <sup>st</sup> Air Refueling Wing Emissions .....	3-91
	3.4.3	Safety .....	3-93
	3.4.3.1	Ground Safety .....	3-93
	3.4.3.2	Flight Safety .....	3-94
	3.4.4	Soils and Water .....	3-95
	3.4.4.1	Soils.....	3-95
	3.4.4.2	Surface Water.....	3-96
	3.4.4.3	Groundwater.....	3-98
	3.4.4.4	Floodplains.....	3-98
	3.4.5	Biological Resources .....	3-98
	3.4.5.1	Vegetation .....	3-98
	3.4.5.2	Wildlife .....	3-99
	3.4.5.3	Special Status Species .....	3-99
	3.4.5.4	Wetlands.....	3-99
	3.4.6	Cultural Resources .....	3-100
	3.4.6.1	Archaeological Resources.....	3-100
	3.4.6.2	Architectural Resources .....	3-100
	3.4.6.3	Traditional Resources .....	3-100
	3.4.7	Land Use .....	3-100
	3.4.8	Infrastructure and Transportation .....	3-102
	3.4.8.1	Potable Water System .....	3-102
	3.4.8.2	Wastewater.....	3-102
	3.4.8.3	Stormwater .....	3-102
	3.4.8.4	Electrical and Natural Gas Systems .....	3-102
	3.4.8.5	Solid Waste Management .....	3-103
	3.4.8.6	Transportation .....	3-103
	3.4.9	Hazardous Materials and Waste.....	3-103
	3.4.9.1	Hazardous Materials.....	3-103
	3.4.9.2	Hazardous Waste Management.....	3-104
	3.4.9.3	Environmental Restoration Program.....	3-105
	3.4.10	Socioeconomics .....	3-107

3.4.10.1	Population and Employment .....	3-107
3.4.10.2	Schools .....	3-108
3.4.10.3	Housing .....	3-108
3.4.11	Environmental Justice and the Protection of Children .....	3-108
3.4.11.1	Minority and Low-Income Populations .....	3-108
3.4.11.2	Protection of Children .....	3-109
3.5	RICKENBACKER AIR NATIONAL GUARD STATION .....	3-110
3.5.1	Noise .....	3-110
3.5.1.1	Baseline Operations .....	3-110
3.5.1.2	Runway and Flight Profiles.....	3-111
3.5.1.3	Existing Noise Environment .....	3-111
3.5.1.4	Rickenbacker International Airport Noise Abatement Procedures .....	3-113
3.5.1.5	Rickenbacker International Airport Noise Complaints Procedures .....	3-113
3.5.2	Air Quality .....	3-114
3.5.2.1	Regulatory Setting.....	3-114
3.5.2.2	Climate and Meteorology.....	3-115
3.5.2.3	Regional and Local Air Pollutant Sources .....	3-116
3.5.2.4	Baseline Air Quality.....	3-116
3.5.2.5	121 <sup>st</sup> Air Refueling Wing Emissions .....	3-117
3.5.3	Safety .....	3-119
3.5.3.1	Ground Safety .....	3-119
3.5.3.2	Flight Safety .....	3-120
3.5.4	Soils and Water .....	3-121
3.5.4.1	Soils.....	3-121
3.5.4.2	Surface Water.....	3-121
3.5.4.3	Groundwater.....	3-122
3.5.4.4	Floodplains.....	3-124
3.5.5	Biological Resources .....	3-124
3.5.5.1	Vegetation .....	3-124
3.5.5.2	Wildlife .....	3-124
3.5.5.3	Special Status Species .....	3-125
3.5.5.4	Wetlands.....	3-125
3.5.6	Cultural Resources .....	3-126
3.5.6.1	Archaeological Resources.....	3-126
3.5.6.2	Architectural Resources .....	3-126
3.5.6.3	Traditional Resources .....	3-126
3.5.7	Land Use .....	3-127
3.5.8	Infrastructure and Transportation .....	3-129
3.5.8.1	Potable Water System .....	3-129
3.5.8.2	Wastewater .....	3-129
3.5.8.3	Stormwater .....	3-129
3.5.8.4	Electrical and Natural Gas Systems .....	3-129
3.5.8.5	Solid Waste Management .....	3-130
3.5.8.6	Transportation .....	3-130

3.5.9	Hazardous Materials and Waste.....	3-130
3.5.9.1	Hazardous Materials.....	3-130
3.5.9.2	Hazardous Waste Management.....	3-131
3.5.9.3	Environmental Restoration Program.....	3-132
3.5.10	Socioeconomics .....	3-134
3.5.10.1	Population and Employment .....	3-134
3.5.10.2	Schools .....	3-135
3.5.10.3	Housing .....	3-135
3.5.11	Environmental Justice and the Protection of Children .....	3-135
3.5.11.1	Minority and Low-Income Populations .....	3-135
3.5.11.2	Protection of Children .....	3-136
<b>CHAPTER 4</b>	<b>ENVIRONMENTAL CONSEQUENCES .....</b>	<b>4-1</b>
4.1	ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION .....	4-1
4.1.1	Noise .....	4-1
4.1.1.1	Aircraft Noise.....	4-1
4.1.1.2	Construction Noise.....	4-6
4.1.1.3	Summary of Impacts .....	4-6
4.1.2	Air Quality .....	4-6
4.1.2.1	Operational Emissions .....	4-6
4.1.2.2	Construction Emissions.....	4-8
4.1.2.3	Summary of Impacts .....	4-9
4.1.3	Safety .....	4-9
4.1.3.1	Ground Safety .....	4-9
4.1.3.2	Flight Safety .....	4-10
4.1.3.3	Summary of Impacts .....	4-12
4.1.4	Soils and Water .....	4-12
4.1.4.1	Soils.....	4-12
4.1.4.2	Surface Water.....	4-13
4.1.4.3	Groundwater.....	4-13
4.1.4.4	Floodplains.....	4-15
4.1.4.5	Summary of Impacts .....	4-15
4.1.5	Biological Resources .....	4-15
4.1.5.1	Vegetation .....	4-15
4.1.5.2	Wildlife .....	4-15
4.1.5.3	Special Status Species.....	4-16
4.1.5.4	Wetlands.....	4-16
4.1.5.5	Summary of Impacts .....	4-16
4.1.6	Cultural Resources .....	4-17
4.1.6.1	Archaeological Resources.....	4-17
4.1.6.2	Architectural Resources .....	4-17
4.1.6.3	Traditional Resources .....	4-17
4.1.6.4	Summary of Impacts .....	4-18
4.1.7	Land Use .....	4-18
4.1.7.1	Summary of Impacts .....	4-19
4.1.8	Infrastructure and Transportation .....	4-21



4.1.8.1	Potable Water .....	4-21
4.1.8.2	Wastewater .....	4-21
4.1.8.3	Stormwater .....	4-21
4.1.8.4	Electrical and Natural Gas Systems .....	4-21
4.1.8.5	Solid Waste Management .....	4-22
4.1.8.6	Transportation .....	4-23
4.1.8.7	Summary of Impacts .....	4-23
4.1.9	Hazardous Materials and Waste.....	4-23
4.1.9.1	Hazardous Materials.....	4-23
4.1.9.2	Hazardous Waste Management.....	4-24
4.1.9.3	Environmental Restoration Program.....	4-25
4.1.9.4	Summary of Impacts .....	4-26
4.1.10	Socioeconomics .....	4-28
4.1.10.1	Summary of Impacts .....	4-28
4.1.11	Environmental Justice and the Protection of Children .....	4-29
4.1.11.1	Minority and Low-Income Populations .....	4-29
4.1.11.2	Protection of Children .....	4-29
4.1.11.3	Summary of Impacts .....	4-29
4.2	ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST .....	4-30
4.2.1	Noise .....	4-30
4.2.1.1	Aircraft Noise.....	4-30
4.2.1.2	Construction Noise.....	4-34
4.2.1.3	Summary of Impacts .....	4-35
4.2.2	Air Quality .....	4-35
4.2.2.1	Operational Emissions .....	4-35
4.2.2.2	Construction Emissions.....	4-37
4.2.2.3	Summary of Impacts .....	4-38
4.2.3	Safety .....	4-38
4.2.3.1	Ground Safety .....	4-38
4.2.3.2	Flight Safety .....	4-39
4.2.3.3	Summary of Impacts .....	4-41
4.2.4	Soils and Water .....	4-41
4.2.4.1	Soils.....	4-41
4.2.4.2	Surface Water.....	4-42
4.2.4.3	Groundwater.....	4-44
4.2.4.4	Floodplains.....	4-44
4.2.4.5	Summary of Impacts .....	4-44
4.2.5	Biological Resources .....	4-45
4.2.5.1	Vegetation .....	4-45
4.2.5.2	Wildlife .....	4-45
4.2.5.3	Special Status Species .....	4-46
4.2.5.4	Wetlands.....	4-46
4.2.5.5	Summary of Impacts .....	4-47
4.2.6	Cultural Resources .....	4-47
4.2.6.1	Archaeological Resources.....	4-47
4.2.6.2	Architectural Resources .....	4-48

4.2.6.3	Traditional Resources .....	4-48
4.2.6.4	Summary of Impacts .....	4-48
4.2.7	Land Use .....	4-49
4.2.7.1	Summary of Impacts .....	4-52
4.2.8	Infrastructure and Transportation .....	4-52
4.2.8.1	Potable Water .....	4-52
4.2.8.2	Wastewater .....	4-52
4.2.8.3	Stormwater .....	4-53
4.2.8.4	Electrical and Natural Gas Systems .....	4-53
4.2.8.5	Solid Waste Management .....	4-54
4.2.8.6	Transportation .....	4-54
4.2.8.7	Summary of Impacts .....	4-55
4.2.9	Hazardous Materials and Waste.....	4-55
4.2.9.1	Hazardous Materials.....	4-55
4.2.9.2	Hazardous Waste Management.....	4-56
4.2.9.3	Environmental Restoration Program.....	4-57
4.2.9.4	Summary of Impacts .....	4-58
4.2.10	Socioeconomics .....	4-60
4.2.10.1	Summary of Impacts .....	4-61
4.2.11	Environmental Justice and the Protection of Children .....	4-61
4.2.11.1	Minority and Low-Income Populations .....	4-61
4.2.11.2	Protection of Children .....	4-61
4.2.11.3	Summary of Impacts .....	4-62
4.3	ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION.....	4-63
4.3.1	Noise .....	4-63
4.3.1.1	Aircraft Noise.....	4-63
4.3.1.2	Construction Noise.....	4-67
4.3.1.3	Summary of Impacts .....	4-68
4.3.2	Air Quality .....	4-68
4.3.2.1	Operational Emissions .....	4-68
4.3.2.2	Construction Emissions.....	4-70
4.3.2.3	Summary of Impacts .....	4-71
4.3.3	Safety .....	4-71
4.3.3.1	Ground Safety .....	4-71
4.3.3.2	Flight Safety .....	4-72
4.3.3.3	Summary of Impacts .....	4-73
4.3.4	Soils and Water .....	4-74
4.3.4.1	Soils.....	4-74
4.3.4.2	Surface Water.....	4-75
4.3.4.3	Groundwater.....	4-77
4.3.4.4	Floodplains.....	4-77
4.3.4.5	Summary of Impacts .....	4-77
4.3.5	Biological Resources .....	4-77
4.3.5.1	Vegetation .....	4-77
4.3.5.2	Wildlife .....	4-78
4.3.5.3	Special Status Species .....	4-79

4.3.5.4	Wetlands.....	4-79
4.3.5.5	Summary of Impacts .....	4-79
4.3.6	Cultural Resources.....	4-80
4.3.6.1	Archaeological Resources.....	4-80
4.3.6.2	Architectural Resources .....	4-80
4.3.6.3	Traditional Resources .....	4-80
4.3.6.4	Summary of Impacts .....	4-81
4.3.7	Land Use .....	4-81
4.3.7.1	Summary of Impacts .....	4-83
4.3.8	Infrastructure and Transportation .....	4-83
4.3.8.1	Potable Water .....	4-83
4.3.8.2	Wastewater .....	4-83
4.3.8.3	Stormwater .....	4-83
4.3.8.4	Electrical and Natural Gas Systems .....	4-84
4.3.8.5	Solid Waste Management .....	4-84
4.3.8.6	Transportation .....	4-85
4.3.8.7	Summary of Impacts .....	4-86
4.3.9	Hazardous Materials and Waste.....	4-86
4.3.9.1	Hazardous Materials.....	4-86
4.3.9.2	Hazardous Waste Management.....	4-87
4.3.9.3	Environmental Restoration Program.....	4-87
4.3.9.4	Summary of Impacts .....	4-90
4.3.10	Socioeconomics .....	4-90
4.3.10.1	Summary of Impacts .....	4-91
4.3.11	Environmental Justice and the Protection of Children .....	4-91
4.3.11.1	Minority and Low-Income Populations .....	4-91
4.3.11.2	Protection of Children.....	4-91
4.3.11.3	Summary of Impacts .....	4-91
4.4	ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION.....	4-92
4.4.1	Noise .....	4-92
4.4.1.1	Aircraft Noise.....	4-92
4.4.1.2	Construction Noise.....	4-97
4.4.1.3	Summary of Impacts .....	4-97
4.4.2	Air Quality .....	4-98
4.4.2.1	Operational Emissions .....	4-98
4.4.2.2	Construction Emissions.....	4-100
4.4.2.3	Summary of Impacts .....	4-101
4.4.3	Safety .....	4-101
4.4.3.1	Ground Safety .....	4-101
4.4.3.2	Flight Safety .....	4-102
4.4.3.3	Summary of Impacts .....	4-103
4.4.4	Soils and Water .....	4-104
4.4.4.1	Soils.....	4-104
4.4.4.2	Surface Water.....	4-105
4.4.4.3	Groundwater.....	4-107
4.4.4.4	Floodplains.....	4-107

4.4.4.5	Summary of Impacts .....	4-107
4.4.5	Biological Resources .....	4-107
4.4.5.1	Vegetation .....	4-107
4.4.5.2	Wildlife .....	4-108
4.4.5.3	Special Status Species .....	4-108
4.4.5.4	Wetlands.....	4-108
4.4.5.5	Summary of Impacts .....	4-109
4.4.6	Cultural Resources .....	4-109
4.4.6.1	Archaeological Resources.....	4-109
4.4.6.2	Architectural Resources .....	4-110
4.4.6.3	Traditional Resources .....	4-110
4.4.6.4	Summary of Impacts .....	4-110
4.4.7	Land Use .....	4-111
4.4.7.1	Summary of Impacts .....	4-111
4.4.8	Infrastructure and Transportation .....	4-113
4.4.8.1	Potable Water .....	4-113
4.4.8.2	Wastewater .....	4-113
4.4.8.3	Stormwater .....	4-113
4.4.8.4	Electrical and Natural Gas Systems .....	4-113
4.4.8.5	Solid Waste Management .....	4-114
4.4.8.6	Transportation .....	4-115
4.4.8.7	Summary of Impacts .....	4-115
4.4.9	Hazardous Materials and Waste.....	4-116
4.4.9.1	Hazardous Materials.....	4-116
4.4.9.2	Hazardous Waste Management.....	4-117
4.4.9.3	Environmental Restoration Program.....	4-117
4.4.9.4	Summary of Impacts .....	4-120
4.4.10	Socioeconomics .....	4-120
4.4.10.1	Summary of Impacts .....	4-121
4.4.11	Environmental Justice and the Protection of Children .....	4-121
4.4.11.1	Minority and Low-Income Populations .....	4-121
4.4.11.2	Protection of Children .....	4-122
4.4.11.3	Summary of Impacts .....	4-122
4.5	ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION.....	4-123
4.5.1	Noise .....	4-123
4.5.1.1	Aircraft Noise.....	4-123
4.5.1.2	Construction Noise.....	4-128
4.5.1.3	Summary of Impacts .....	4-128
4.5.2	Air Quality .....	4-129
4.5.2.1	Operational Emissions .....	4-129
4.5.2.2	Construction Emissions.....	4-131
4.5.2.3	Summary of Impacts .....	4-132
4.5.3	Safety .....	4-132
4.5.3.1	Ground Safety .....	4-132
4.5.3.2	Flight Safety .....	4-133
4.5.3.3	Summary of Impacts .....	4-134

4.5.4	Soils and Water .....	4-135
4.5.4.1	Soils.....	4-135
4.5.4.2	Surface Water.....	4-135
4.5.4.3	Groundwater.....	4-138
4.5.4.4	Floodplains.....	4-138
4.5.4.5	Summary of Impacts .....	4-138
4.5.5	Biological Resources .....	4-138
4.5.5.1	Vegetation .....	4-138
4.5.5.2	Wildlife .....	4-139
4.5.5.3	Special Status Species.....	4-139
4.5.5.4	Wetlands.....	4-140
4.5.5.5	Summary of Impacts .....	4-140
4.5.6	Cultural Resources.....	4-140
4.5.6.1	Archaeological Resources.....	4-140
4.5.6.2	Architectural Resources .....	4-141
4.5.6.3	Traditional Resources .....	4-141
4.5.6.4	Summary of Impacts .....	4-142
4.5.7	Land Use .....	4-142
4.5.7.1	Summary of Impacts .....	4-145
4.5.8	Infrastructure and Transportation .....	4-145
4.5.8.1	Potable Water .....	4-145
4.5.8.2	Wastewater .....	4-145
4.5.8.3	Stormwater .....	4-145
4.5.8.4	Electrical and Natural Gas Systems .....	4-146
4.5.8.5	Solid Waste Management .....	4-146
4.5.8.6	Transportation .....	4-147
4.5.8.7	Summary of Impacts .....	4-148
4.5.9	Hazardous Materials and Waste.....	4-148
4.5.9.1	Hazardous Materials.....	4-148
4.5.9.2	Hazardous Waste Management.....	4-149
4.5.9.3	Environmental Restoration Program.....	4-149
4.5.9.4	Summary of Impacts .....	4-152
4.5.10	Socioeconomics .....	4-152
4.5.10.1	Summary of Impacts .....	4-153
4.5.11	Environmental Justice and the Protection of Children .....	4-153
4.5.11.1	Minority and Low-Income Populations .....	4-153
4.5.11.2	Protection of Children.....	4-153
4.5.11.3	Summary of Impacts .....	4-153
4.6	NO ACTION ALTERNATIVE.....	4-155
4.6.1	Noise .....	4-155
4.6.2	Air Quality .....	4-156
4.6.3	Safety .....	4-156
4.6.4	Soils and Water .....	4-156
4.6.5	Biological Resources .....	4-157
4.6.6	Cultural Resources.....	4-157
4.6.7	Land Use .....	4-157

4.6.8	Infrastructure and Transportation .....	4-158
4.6.9	Hazardous Materials and Wastes .....	4-158
4.6.10	Socioeconomics .....	4-158
4.6.11	Environmental Justice and the Protection of Children .....	4-159
<b>CHAPTER 5</b>	<b>CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES .....</b>	<b>5-1</b>
5.1	ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS .....	5-1
5.1.1	Past, Present, and Reasonably Foreseeable Actions .....	5-1
5.1.2	Cumulative Impacts .....	5-2
5.1.2.1	Noise .....	5-2
5.1.2.2	Air Quality .....	5-2
5.1.2.3	Safety .....	5-3
5.1.2.4	Soils and Water .....	5-3
5.1.2.5	Biological Resources.....	5-4
5.1.2.6	Cultural Resources .....	5-4
5.1.2.7	Land Use .....	5-5
5.1.2.8	Infrastructure and Transportation.....	5-5
5.1.2.9	Hazardous Materials and Waste.....	5-6
5.1.2.10	Socioeconomics .....	5-6
5.1.2.11	Environmental Justice and the Protection of Children.....	5-7
5.2	ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST CUMULATIVE EFFECTS .....	5-8
5.2.1	Past, Present, and Reasonably Foreseeable Actions .....	5-8
5.2.2	Cumulative Impacts .....	5-9
5.2.2.1	Noise .....	5-9
5.2.2.2	Air Quality .....	5-9
5.2.2.3	Safety .....	5-10
5.2.2.4	Soils and Water .....	5-11
5.2.2.5	Biological Resources.....	5-12
5.2.2.6	Cultural Resources .....	5-13
5.2.2.7	Land Use .....	5-13
5.2.2.8	Infrastructure and Transportation.....	5-14
5.2.2.9	Hazardous Materials and Waste.....	5-14
5.2.2.10	Socioeconomics .....	5-14
5.2.2.11	Environmental Justice and the Protection of Children.....	5-15
5.3	ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS .....	5-16
5.3.1	Past, Present, and Reasonably Foreseeable Actions .....	5-16
5.3.2	Cumulative Impacts .....	5-17
5.3.2.1	Noise .....	5-17
5.3.2.2	Air Quality .....	5-17
5.3.2.3	Safety .....	5-17
5.3.2.4	Soils and Water .....	5-18
5.3.2.5	Biological Resources.....	5-19

5.3.2.6	Cultural Resources .....	5-20
5.3.2.7	Land Use .....	5-20
5.3.2.8	Infrastructure and Transportation.....	5-20
5.3.2.9	Hazardous Materials and Waste.....	5-21
5.3.2.10	Socioeconomics .....	5-21
5.3.2.11	Environmental Justice and the Protection of Children.....	5-21
5.4	ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION	
	CUMULATIVE EFFECTS.....	5-23
5.4.1	Past, Present, and Reasonably Foreseeable Actions .....	5-23
5.4.2	Cumulative Impacts .....	5-24
5.4.2.1	Noise .....	5-24
5.4.2.2	Air Quality .....	5-25
5.4.2.3	Safety .....	5-25
5.4.2.4	Soils and Water .....	5-26
5.4.2.5	Biological Resources.....	5-27
5.4.2.6	Cultural Resources .....	5-27
5.4.2.7	Land Use .....	5-28
5.4.2.8	Infrastructure and Transportation.....	5-28
5.4.2.9	Hazardous Materials and Waste.....	5-28
5.4.2.10	Socioeconomics .....	5-29
5.4.2.11	Environmental Justice and the Protection of Children.....	5-29
5.5	ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION	
	CUMULATIVE EFFECTS.....	5-30
5.5.1	Past, Present, and Reasonably Foreseeable Actions .....	5-30
5.5.2	Cumulative Impacts .....	5-31
5.5.2.1	Noise .....	5-31
5.5.2.2	Air Quality .....	5-32
5.5.2.3	Safety .....	5-32
5.5.2.4	Soils and Water .....	5-33
5.5.2.5	Biological Resources.....	5-34
5.5.2.6	Cultural Resources .....	5-34
5.5.2.7	Land Use .....	5-35
5.5.2.8	Infrastructure and Transportation.....	5-35
5.5.2.9	Hazardous Materials and Waste.....	5-36
5.5.2.10	Socioeconomics .....	5-36
5.5.2.11	Environmental Justice and the Protection of Children.....	5-36
5.6	IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES FOR ALL ALTERNATIVES .....	5-37
<b>CHAPTER 6</b>	<b>REFERENCES.....</b>	<b>6-1</b>
<b>CHAPTER 7</b>	<b>PERSONS AND AGENCIES CONTACTED .....</b>	<b>7-1</b>
<b>CHAPTER 8</b>	<b>LIST OF PREPARERS.....</b>	<b>8-1</b>
<b>INDEX.....</b>		<b>IDX-1</b>
<b>LIST OF REPOSITORIES.....</b>		<b>REPOS-1</b>
<b>GLOSSARY.....</b>		<b>GLOSS-1</b>



## TABLES

ES-1	Summary of Alternatives (Current/Proposed) .....	ES-6
ES-2	Summary of Impacts .....	ES-10
1.3-1	Comparison of KC-135 and KC-46A .....	1-5
2.3-1	Current 190 ARW KC-135 Operations at Forbes Field Airport .....	2-9
2.3-2	Proposed 190 ARW KC-46A Operations at Forbes Field Airport .....	2-10
2.3-3	Changes to 190 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-10
2.3-4	Current and Proposed Local Air Refueling Airspace Used by the 190 ARW .....	2-11
2.3-5	Proposed 190 ARW Construction Projects at Forbes Field Airport .....	2-12
2.3-6	Comparison of Currently Authorized and Proposed 190 ARW Personnel .....	2-16
2.3-7	Current 108 WG KC-135 Operations at McGuire Field .....	2-19
2.3-8	Proposed 108 WG KC-46A Operations at McGuire Field .....	2-19
2.3-9	Changes to 108 WG Airfield Operations with Proposed KC-46A Aircraft .....	2-19
2.3-10	Current and Proposed Local Air Refueling Airspace Used by the 108 WG .....	2-20
2.3-11	Proposed 108 WG Construction Projects at McGuire Field .....	2-21
2.3-12	Comparison of Currently Authorized and Proposed 108 WG Personnel .....	2-26
2.3-13	Current 157 ARW Operations at Portsmouth IAP .....	2-29
2.3-14	Proposed 157 ARW KC-46A Operations at Portsmouth IAP .....	2-29
2.3-15	Changes to 157 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-29
2.3-16	Current and Proposed Local Air Refueling Airspace Used by the 157 ARW .....	2-30
2.3-17	Proposed 157 ARW Construction Projects at Portsmouth IAP .....	2-32
2.3-18	Comparison of Currently Authorized and Proposed 157 ARW Personnel .....	2-36
2.3-19	Current 171 ARW KC-135 Aircraft Operations at Pittsburgh IAP .....	2-39
2.3-20	Proposed 171 ARW KC-46A Operations at Pittsburgh IAP .....	2-39
2.3-21	Changes to 171 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-40
2.3-22	Current and Proposed Local Air Refueling Airspace Used by the 171 ARW .....	2-41
2.3-23	Proposed 171 ARW Construction Projects at Pittsburgh IAP .....	2-42
2.3-24	Comparison of Currently Authorized and Proposed 171 ARW Personnel .....	2-46
2.3-25	Current 121 ARW KC-135 Operations at Rickenbacker IAP .....	2-48
2.3-26	Proposed 121 ARW KC-46A Aircraft Operations at Rickenbacker IAP .....	2-49
2.3-27	Changes to 121 ARW Airfield Operations with Proposed KC-46A Aircraft .....	2-49
2.3-28	Current and Proposed Local Air Refueling Airspace Used by the 121 ARW .....	2-50
2.3-29	Proposed 121 ARW Construction Projects at Rickenbacker IAP .....	2-51
2.3-30	Comparison of Currently Authorized and Proposed 121 ARW Personnel .....	2-55
2.6-1	Summary of Alternatives (Current/Proposed) .....	2-57
2.6-2	Summary of Impacts .....	2-58
3.1.1-1	Current Forbes Field Airport Annual Aircraft Operations .....	3-2
3.1.1-2	Acres within Baseline Noise Contours, Forbes Field Airport .....	3-3
3.1.2-1	Ambient Air Quality Standards .....	3-6
3.1.2-2	Regional Emissions for Shawnee County, Kansas .....	3-8
3.1.2-3	Ambient Air Monitoring Data for Topeka and Kansas City, Kansas .....	3-9
3.1.2-4	190 ARW Baseline Emissions at Forbes ANG .....	3-10
3.1.9-1	ERP Sites within the 190 ARW Installation .....	3-24
3.1.10-1	Population Growth within the Vicinity of Forbes ANG .....	3-26
3.1.10-2	Employment Data (2011) within the Vicinity of Forbes ANG .....	3-26

3.1.11-1	Population within the Vicinity of Forbes ANG	3-27
3.2.1-1	Current McGuire Field Annual Aircraft Operations	3-29
3.2.1-2	Acres within Baseline Noise Contours, McGuire Field	3-29
3.2.2-1	Ambient Air Quality Standards	3-32
3.2.2-2	Regional Emissions for Burlington and Ocean Counties, New Jersey	3-34
3.2.2-3	Ambient Air Monitoring Data for the JB MDL Area	3-35
3.2.2-4	108 WG Baseline Emissions at JB MDL	3-36
3.2.9-1	ERP Sites within the 108 WG Installation	3-51
3.2.10-1	Population Growth within the Vicinity of JB MDL	3-53
3.2.10-2	Employment Data (2011) within the Vicinity of JB MDL	3-54
3.2.11-1	Population within the Vicinity of JB MDL	3-55
3.2.11-2	Population within Baseline Noise Contours, JB MDL	3-55
3.3.1-1	Current Portsmouth IAP Annual Aircraft Operations	3-58
3.3.1-2	Acres within Baseline Noise Contours, Portsmouth IAP	3-58
3.3.2-1	Ambient Air Quality Standards	3-61
3.3.2-2	Regional Emissions for Rockingham County, New Hampshire	3-63
3.3.2-3	Ambient Air Monitoring Data for the Portsmouth Area	3-64
3.3.2-4	157 ARW Baseline Emissions at Pease ANG	3-65
3.3.9-1	ERP Sites within the 157 ARW Installation	3-79
3.3.10-1	Population Growth within the Vicinity of Pease ANG	3-81
3.3.10-2	Employment Data (2011) within the Vicinity of Pease ANG	3-81
3.3.11-1	Population within the Vicinity of Pease ANG	3-82
3.4.1-1	Current Pittsburgh IAP Annual Aircraft Operations FAR Part 150	3-85
3.4.1-2	Acres within Baseline Noise Contours, Pittsburgh IAP	3-86
3.4.2-1	Ambient Air Quality Standards	3-89
3.4.2-2	Regional Emissions for Allegheny County, Pennsylvania	3-90
3.4.2-3	Ambient Air Monitoring Data for the Pittsburgh Area	3-91
3.4.2-4	171 ARW Baseline Emissions at Pittsburgh ANG	3-92
3.4.9-1	ERP Sites within the 171 ARW Installation	3-105
3.4.10-1	Population Growth within the Vicinity of Pittsburgh ANG	3-107
3.4.10-2	Employment Data (2011) within the Vicinity of Pittsburgh ANG	3-107
3.4.11-1	Population within the Vicinity of Pittsburgh ANG	3-108
3.4.11-2	Population within Baseline Noise Contours, Pittsburgh ANG	3-109
3.5.1-1	Current Rickenbacker IAP Annual Aircraft Operations FAR Part 150	3-111
3.5.1-2	Acres within Baseline Noise Contours, Rickenbacker IAP	3-113
3.5.2-1	Ambient Air Quality Standards	3-115
3.5.2-2	Regional Emissions for Franklin County, Ohio	3-116
3.5.2-3	Ambient Air Monitoring Data for the Columbus Area	3-117
3.5.2-4	121 ARW Baseline Emissions at Rickenbacker ANG	3-118
3.5.9-1	ERP Sites within the 121 ARW Installation	3-132
3.5.10-1	Population Growth within the Vicinity of Rickenbacker ANG	3-134
3.5.10-2	Employment Data (2011) within the Vicinity of Rickenbacker ANG	3-135
3.5.11-1	Population within the Vicinity of Rickenbacker ANG	3-136
4.1.1-1	Forbes Field Airport Annual Aircraft Operations with Proposed KC-46A	4-2
4.1.1-2	Land Areas within DNL Contours at Forbes Field Airport Affected by DNL Greater than 65 dB under Baseline and Alternative #1	4-2

4.1.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 190 ARW .....	4-7
4.1.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 190 ARW .....	4-8
4.1.2-3	Annual Construction Emissions Under Alternative #1 .....	4-9
4.1.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Forbes Field Airport Boundary .....	4-19
4.2.1-1	McGuire Field Annual Aircraft Operations with Proposed KC-46A .....	4-31
4.2.1-2	Land Areas within DNL Contours at JB MDL Affected by DNL Greater than 65 dB under Baseline and Alternative #2 .....	4-31
4.2.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 108 WG Installation .....	4-36
4.2.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 108 WG .....	4-37
4.2.2-3	Annual Construction Emissions Under Alternative #2 .....	4-38
4.2.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the McGuire Field Boundary .....	4-50
4.2.11-1	Population within Alternative #2 Noise Contours, JB MDL .....	4-61
4.3.1-1	Portsmouth IAP Annual Aircraft Operations with Proposed KC-46A .....	4-64
4.3.1-2	Land Areas within DNL Contours at Portsmouth IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #3 .....	4-64
4.3.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 157 ARW .....	4-69
4.3.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 157 ARW .....	4-70
4.3.2-3	Annual Construction Emissions Under Alternative #3 .....	4-71
4.3.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Portsmouth IAP .....	4-83
4.4.1-1	Changes to Pittsburgh IAP Airfield Operations with Proposed KC-46A Based on FAR Part 150 Baseline .....	4-93
4.4.1-2	Pittsburgh ANG's Aircraft Operations with Proposed KC-46A .....	4-93
4.4.1-3	Land Areas within DNL Contours at Pittsburgh IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #4 .....	4-94
4.4.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 171 ARW .....	4-99
4.4.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 171 ARW .....	4-100
4.4.2-3	Annual Construction Emissions Under Alternative #4 .....	4-101
4.4.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Pittsburgh IAP Boundary .....	4-111
4.4.11-1	Population within Alternative #4 Noise Contours, Pittsburgh IAP .....	4-122
4.5.1-1	Changes to Rickenbacker IAP Airfield Operations with Proposed KC-46A Based on FAR Part 150 Baseline .....	4-124
4.5.1-2	Rickenbacker ANG's Aircraft Operations with Proposed KC-46A .....	4-124
4.5.1-3	Land Areas within DNL Contours at Rickenbacker IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #5 .....	4-125

4.5.2-1	Comparison of Baseline and Proposed Annual Operational Emissions, 121 ARW .....	4-130
4.5.2-2	Comparison of Baseline and Proposed Annual Operational GHG Emissions, 121 ARW .....	4-131
4.5.2-3	Annual Construction Emissions Under Alternative #5.....	4-132
4.5.7-1	Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Rickenbacker IAP Boundary .....	4-143
5.1.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Forbes ANGS .....	5-1
5.2.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for JB MDL .....	5-8
5.3.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Pease ANGS.....	5-16
5.4.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Pittsburgh ANGS .....	5-23
5.5.1-1	Past, Present, and Reasonably Foreseeable Actions in the ROI for Rickenbacker ANGS.....	5-30

## FIGURES

ES-1	Alternative Locations for the KC-46A ANG Beddown .....	ES-2
1.1-1	Alternative Locations for the KC-46A ANG Beddown .....	1-2
2.3-1	Regional Location Forbes ANGS .....	2-8
2.3-2	Construction Associated with Alternative #1, Forbes ANGS .....	2-13
2.3-3	Regional Location, JB MDL.....	2-17
2.3-4	Construction Associated with Alternative #2, JB MDL .....	2-22
2.3-5	Regional Location Pease ANGS.....	2-27
2.3-6	Construction Associated with Alternative #3, Pease ANGS .....	2-33
2.3-7	Regional Location, Pittsburgh ANGS.....	2-38
2.3-8	Construction Associated with Alternative #4, Pittsburgh ANGS .....	2-43
2.3-9	Regional Location Rickenbacker ANGS .....	2-47
2.3-10	Construction Associated with Alternative #5, Rickenbacker ANGS .....	2-52
3.1.1-1	Baseline DNL Noise Contours for Forbes Field Airport.....	3-4
3.1.4-1	Surface Water Features in the Vicinity of Forbes ANGS.....	3-15
3.1.7-1	DNL Noise Contours and Land Use at Forbes Field Airport .....	3-20
3.1.9-1	Environmental Restoration Program Sites at the 190 ARW Installation, Forbes Field Airport.....	3-25
3.2.1-1	Baseline DNL Noise Contours for McGuire Field .....	3-30
3.2.4-1	Surface Water Features and Wetlands in the Vicinity of McGuire Field .....	3-41
3.2.7-1	DNL Noise Contours and Land Use at McGuire Field.....	3-48
3.2.9-1	Environmental Restoration Program Sites at the 108 WG Installation, JB MDL ..	3-52
3.3.1-1	Baseline DNL Noise Contours for Portsmouth IAP .....	3-59
3.3.4-1	Surface Water Features and Wetlands in the Vicinity of Pease ANGS.....	3-70
3.3.7-1	DNL Noise Contours and Land Use at Portsmouth IAP .....	3-75
3.3.9-1	ERP Sites at the 157 ARW Installation, Portsmouth IAP .....	3-80
3.4.1-1	Baseline DNL Noise Contours for Pittsburgh IAP.....	3-87

3.4.4-1	Surface Water Features and Wetlands in the Vicinity of Pittsburgh ANGUS .....	3-97
3.4.7-1	DNL Noise Contours and Land Use at Pittsburgh IAP .....	3-101
3.4.9-1	ERP Sites at the 171 ARW Installation, Pittsburgh IAP .....	3-106
3.5.1-1	Baseline DNL Noise Contours for Rickenbacker IAP .....	3-112
3.5.4-1	Surface Water Features and Wetlands in the Vicinity of Rickenbacker ANGUS ....	3-123
3.5.7-1	DNL Noise Contours and Land Use at Rickenbacker IAP.....	3-128
3.5.9-1	ERP Sites at the 121 ARW Installation, Rickenbacker IAP.....	3-133
4.1.1-1	DNL Noise Contours Under Alternative #1 at Forbes Field Airport.....	4-3
4.1.1-2	Comparison of Baseline and Alternative #1 DNL Noise Contours at Forbes Field Airport.....	4-4
4.1.4-1	Surface Water Features and Proposed Construction in the Vicinity of Forbes ANGUS.....	4-14
4.1.7-1	DNL Noise Contours and Land Use Under Alternative #1 at Forbes Field Airport.....	4-20
4.1.9-1	ERP Sites and Proposed Construction in the Vicinity of Forbes ANGUS .....	4-27
4.2.1-1	DNL Noise Contours Under Alternative #2 at McGuire Field.....	4-32
4.2.1-2	Comparison of Baseline and Alternative #2 DNL Noise Contours at McGuire Field.....	4-33
4.2.4-1	Surface Water Features and Proposed Construction in the Vicinity of McGuire Field.....	4-43
4.2.7-1	DNL Noise Contours and Land Use Under Alternative #2 at McGuire Field.....	4-51
4.2.9-1	ERP Sites and Proposed Construction in the Vicinity of McGuire Field .....	4-59
4.3.1-1	DNL Noise Contours Under Alternative #3 at Portsmouth IAP.....	4-65
4.3.1-2	Comparison of Baseline and Alternative #3 DNL Noise Contours at Portsmouth IAP.....	4-66
4.3.4-1	Surface Water Features and Proposed Construction in the Vicinity of Pease ANGUS.....	4-76
4.3.7-1	DNL Noise Contours and Land Use Under Alternative #3 at Portsmouth IAP .....	4-82
4.3.9-1	ERP Sites and Proposed Construction in the Vicinity of Pease ANGUS.....	4-89
4.4.1-1	DNL Noise Contours Under Alternative #4 at Pittsburgh IAP.....	4-95
4.4.1-2	Comparison of Baseline and Alternative #4 DNL Noise Contours for Pittsburgh IAP.....	4-96
4.4.4-1	Surface Water Features and Proposed Construction in the Vicinity of Pittsburgh ANGUS .....	4-106
4.4.7-1	DNL Noise Contours and Land Use Under Alternative #4 at Pittsburgh IAP .....	4-112
4.4.9-1	ERP Sites and Proposed Construction in the Vicinity of Pittsburgh ANGUS .....	4-119
4.5.1-1	DNL Noise Contours Under Alternative #5 at Rickenbacker IAP .....	4-126
4.5.1-2	Comparison of Baseline and Alternative #5 DNL Noise Contours at Rickenbacker IAP .....	4-127
4.5.4-1	Surface Water Features and Proposed Construction in the Vicinity of Rickenbacker ANGUS.....	4-137
4.5.7-1	DNL Noise Contours and Land Use Under Alternative #5 at Rickenbacker IAP .....	4-144
4.5.9-1	ERP Sites and Proposed Construction in the Vicinity of Rickenbacker ANGUS ....	4-151

Appendices are included on CD-ROM on the inside back cover of this document.

<b>APPENDIX A</b>	<b>RESOURCE DEFINITIONS AND METHODOLOGIES</b>
<b>APPENDIX B</b>	<b>CORRESPONDENCE</b>
<b>APPENDIX C</b>	<b>BACKGROUND INFORMATION FOR THE NOISE ANALYSIS</b>
<b>APPENDIX D</b>	<b>AIR QUALITY</b>
<b>APPENDIX E</b>	<b>SPECIAL STATUS SPECIES LISTS</b>
<b>APPENDIX F</b>	<b>FINAL GENERAL CONFORMITY DETERMINATION FOR KC-46A ALTERNATIVE BEDDOWN LOCATION</b>

## ACRONYMS AND ABBREVIATIONS

°C	degree Celsius	CO <sub>2</sub>	carbon dioxide
°F	degree Fahrenheit	CO <sub>2</sub> e	carbon dioxide equivalent
µg/m <sup>3</sup>	micrograms per cubic meter	CONUS	continental United States
64 ARS	64 <sup>th</sup> Air Refueling Squadron	CRAA	Columbus Regional Airport Authority
108 WG	108 <sup>th</sup> Wing	CWA	Clean Water Act
121 ARW	121 <sup>st</sup> Air Refueling Wing	CY	Calendar Year
157 ARW	157 <sup>th</sup> Air Refueling Wing	CZ	Clear Zone
171 ARW	171 <sup>st</sup> Air Refueling Wing	dB	decibel
190 ARW	190 <sup>th</sup> Air Refueling Wing	DERP	Defense Environmental Restoration Program
AAD	Average Annual Day	DLA	Defense Logistics Agency
AAQS	Ambient Air Quality Standards	DNL	Day-Night Average Sound Level
ACAA	Allegheny County Airport Authority	DoD	Department of Defense
ACM	asbestos-containing material	EIS	Environmental Impact Statement
ACS	American Community Survey	EISA	Energy Independence and Security Act
AFB	Air Force Base	EO	Executive Order
AFCEC	Air Force Civil Engineer Center	ERP	Environmental Restoration Program
AFI	Air Force Instruction	FAA	Federal Aviation Administration
AFMAN	Air Force Manual	FAR	Federal Aviation Regulations
AFOSH	Air Force Occupational Safety and Health	FEMA	Federal Emergency Management Agency
AFSEC	Air Force Safety Center	FHWA	Federal Highway Administration
AGE	Aerospace Ground Equipment	FICUN	Federal Interagency Committee on Urban Noise
AGL	above ground level	FL	Flight Level
AICUZ	Air Installation Compatible Use Zone	FPPA	Farmland Protection Policy Act
AMC	Air Mobility Command	FY	fiscal year
ANG	Air National Guard	FTU	Formal Training Unit
ANGS	Air National Guard Station	GHG	greenhouse gas
AOC	Area of Concern	GMV	Government Motor Vehicle
APZ	Accident Potential Zone	GWP	global warming potential
ARFF	Aircraft Rescue and Fire Fighting	HAP	Hazardous Air Pollutant
ARO	Air Refueling Operator	I-	Interstate
ASD	Average Sortie Duration	IAP	International Airport
ASN	Aviation Safety Network	IFR	Instrument Flight Rule
AST	aboveground storage tank	INM	Integrated Noise Model
AT/FP	Anti-Terrorism/Force Protection	JB MDL	Joint Base McGuire-Dix-Lakehurst
ATADS	Air Traffic Activity Data System	KIAS	knots indicated airspeed
ATCAA	Air Traffic Control Assigned Airspace	KS ANG	Kansas Air National Guard
BAI	Backup Aerospace Vehicle Inventory	LBP	lead-based paint
BASH	Bird/Wildlife Aircraft Strike Hazard	LEED	Leadership in Energy and Environmental Design
BOMARC	Boeing Michigan Aerospace Research Center	LID	Low Impact Development
C2	Command and Control	MBTA	Migratory Bird Treaty Act
C4	Command, Control, Communications, and Computers	MILCON	Military Construction
CAA	Clean Air Act	MOA	Military Operations Area
CAP	Central Accumulation Point	MOB	Main Operating Base
CEQ	Council on Environmental Quality	MOB 1	First Main Operating Base
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act	MOB 2	Second Main Operating Base
CFR	Code of Federal Regulations	MSL	mean sea level
CH <sub>4</sub>	methane	MTAA	Metropolitan Topeka Air Authority
CO	carbon monoxide	N <sub>2</sub> O	nitrous oxide



NAAQS	National Ambient Air Quality Standards	PM <sub>10</sub>	particulate matter less than or equal to 10 microns in diameter
NDAA	National Defense Authorization Act	POL	petroleum, oil, and lubricant
NEPA	National Environmental Policy Act	POV	privately owned vehicle
NGB	National Guard Bureau	ppm	parts per million
NGB/A7AN	National Guard Bureau, Asset Management Division, Natural Infrastructure Management Branch	PSD	Prevention of Significant Deterioration
NH ANG	New Hampshire Air National Guard	PUD	Planned Unit Development
NHPA	National Historic Preservation Act	QD	quantity-distance
NIOSH	National Institute for Occupational Safety and Health	RCRA	Resource Conservation and Recovery Act
NIPTS	Noise-Induced Permanent Threshold Shift	ROD	Record of Decision
NJ ANG	New Jersey Air National Guard	ROI	Region of Influence
nm	nautical mile	RPZ	Runway Protection Zone
NO <sub>2</sub>	nitrogen dioxide	SAP	satellite accumulation point
NOA	Notice of Availability	SEL	Sound Exposure Level
NOI	Notice of Intent	SF	square foot/feet
NO <sub>x</sub>	oxides of nitrogen	SHPO	State Historic Preservation Office(r)
NPDES	National Pollutant Discharge Elimination System	SIP	State Implementation Plan
NRCS	Natural Resources Conservation Service	SO <sub>2</sub>	sulfur dioxide
NRHP	National Register of Historic Places	SR	State Route
NVIS	Night Vision Imaging System	SUA	Special Use Airspace
O <sub>3</sub>	ozone	SWPPP	Stormwater Pollution Prevention Plan
OH ANG	Ohio Air National Guard	TFI	Total Force Integration
OSHA	Occupational Safety and Health Administration	tpy	tons per year
OWS	oil/water separator	TSCA	Toxic Substances Control Act
PA ANG	Pennsylvania Air National Guard	U.S.	United States
PAA	Primary Aerospace Vehicles Authorized	UFC	Unified Facilities Criteria
PADEP	Pennsylvania Department of Environmental Protection	USACE	United States Army Corps of Engineers
Pb	lead	USAF	United States Air Force
PCB	polychlorinated biphenyl	USC	United States Code
PDA	Pease Development Authority	USDA	United States Department of Agriculture
PM <sub>2.5</sub>	particulate matter less than or equal to 2.5 microns in diameter	USEPA	United States Environmental Protection Agency
		USFWS	United States Fish and Wildlife Service
		USGS	United States Geological Survey
		UST	underground storage tank
		UTBNI	Up to But Not Including
		VFR	Visual Flight Rule
		VOC	volatile organic compound

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## **EXECUTIVE SUMMARY**

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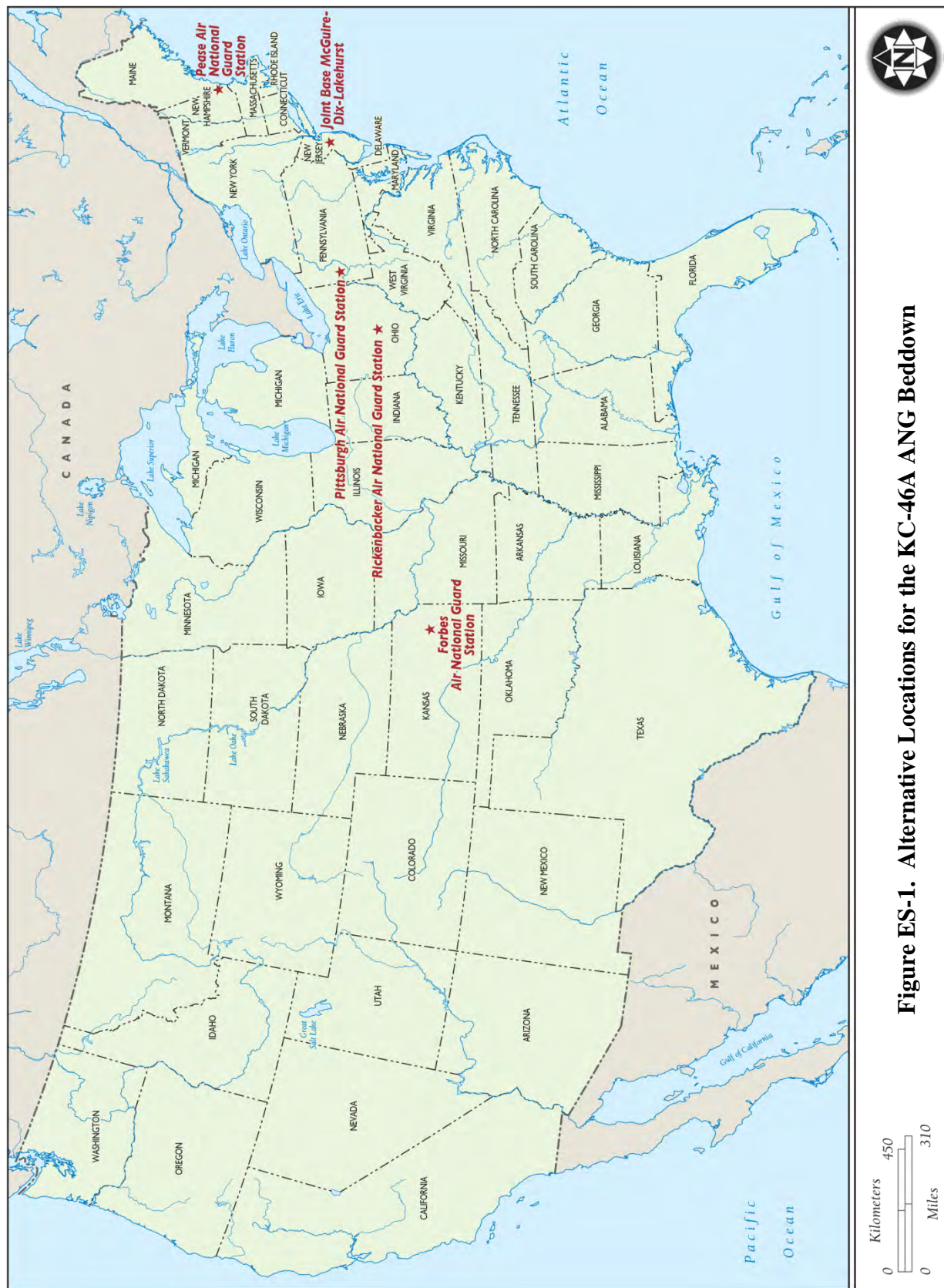
This Environmental Impact Statement (EIS) analyzes the potential environmental impacts associated with the beddown the KC-46A at the Second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit. The Secretary of the Air Force proposes to replace existing KC-135s with the KC-46A aircraft for MOB 2 at one of five alternative locations. The five alternative ANG locations (Figure ES-1) selected for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The official public scoping period for this proposal was initiated when the Notice of Intent (NOI) to prepare the EIS was published in the *Federal Register* on May 17, 2013 and ended on July 5, 2013. The Notice of Availability (NOA) for the Draft EIS was published in the *Federal Register* on February 7, which initiated a 45-day public comment period on the Draft EIS that ended on March 24, 2014. All comments received on the Draft EIS have been fully considered and addressed in the Final EIS, as appropriate. Comments received are reflected in Appendix B, Section 6, pages B6-223 to B6-387. Only substantive comments were responded to in the Government Responses to Comments, Appendix B, Section 6, pages B6-202 to B6-222.

### **PURPOSE AND NEED**

Air refueling is the backbone of the United States' (U.S.) ability to project global reach and combat power. Air refueling aircraft, also known as “tankers,” are a joint asset, serving our sister services and U.S. allies who rely on the range and flexibility of tankers to strengthen their contribution to the coalition fight. Without a robust air refueling capability, U.S. forces would be limited in their ability to provide global reach. The original mission of the current United States Air Force (USAF) air refueling aircraft, the KC-135 Stratotanker, was primarily to refuel strategic bomber aircraft while in flight, which enhances the ability of aircraft to provide sustained mission capability without landing to refuel. Through the course of the KC-135's service life, structural and functional modifications have added capabilities to select aircraft. The result is a fleet of aircraft with multiple configurations and crews that may not be trained to accomplish every mission for which the aircraft is capable. This lack of standardized equipment and training throughout the fleet limits the ability for KC-135s to support, on a large scale, multi-role missions or exploit new tactics and procedures. The following are examples of capabilities that the current KC-135 fleet lacks:



**Figure ES-1. Alternative Locations for the KC-46A ANG Beddown**

- Multi-Point Refueling. Simultaneous refueling of two probe-equipped receiver aircraft from the same tanker is limited to 20 sets of wing-mounted refueling pods installed on the aircraft for the fleet of tankers.
- Boom/Probe and Drogue Refueling. With the exception of the refueling pod equipped aircraft, the KC-135 fleet does not have capability to perform boom and probe/drogue refueling on the same sortie<sup>1</sup>.
- Receiver capabilities. Only eight KC-135s have air refueling receptacles, which means that only eight of the KC-135 aircraft in the fleet can receive fuel in flight. This restricts force extension and limits persistence over the battlefield. It also results in inefficient use of valuable, but limited air refueling assets and limits flexibility within the maintenance schedule.
- Night Vision Imaging System (NVIS). The KC-135 fleet currently lacks a standard NVIS for tanker cockpits and boom operator positions. Additionally, exterior lighting is not currently NVIS-compatible, which prohibits air refueling in tactical NVIS (low vision) conditions. This limits the ability to perform covert air refueling operations at night, and degrades effectiveness of special operations support.
- Command, Control, Communications, and Computers (C4). KC-135s lack robust connectivity to command and control agencies. No secure tactical datalink exists and these aircraft have limited C4 connectivity to other combat, combat support, and mobility aircraft.
- Defensive Protection. KC-135s currently do not have any aircraft defensive systems.

The purpose of this action is to ensure that the National Guard Bureau (NGB) will have air refueling support for both conventional global strike and nuclear deterrence operations into the future. The purpose of the KC-46A is to support air superiority through air refueling of fighter, bomber, attack, special operations, Command and Control, Intelligence, Surveillance and Reconnaissance, and transport aircraft; and to support employment of combat units deploying to areas of operations. Finally, the KC-46A will also support the Command and Control core function as a communications “gateway” when equipped with a roll-on gateway system to provide connectivity between tactical network partners in theater.

The NGB requires a refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The KC-46A is the USAF’s newest air refueling aircraft that meets this need. NGB requires a location to beddown the KC-46A aircraft in support of MOB 2. The base would support the beddown and

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<sup>1</sup> Probe and drogue refueling employs a flexible hose that trails from the tanker aircraft. The drogue is a fitting resembling a windsock, and is attached with a valve to a flexible hose.

training of crewmembers and personnel in the operation and maintenance of the KC-46A aircraft in an appropriate geographic location that can provide sufficient airfield, facilities, infrastructure, and airspace to support the KC-46A training and operations.

#### **NARROWING PROCESS FOR ALTERNATIVE BASES**

As previously described, the NGB is programmed to beddown one squadron of 12 Primary Aerospace Vehicles Authorized (PAA) KC-46A aircraft at one of five alternative locations. Identification and analysis of alternatives is one of the core elements of the environmental process under the National Environmental Policy Act (NEPA) and the USAF's implementing regulations. The NGB may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 Code of Federal Regulations [CFR] 989.8(c)). Based on extensive analysis by the USAF operations community, a siting study was conducted to determine the specific requirements for beddown of the KC-46A aircraft and to identify potential military installations where this beddown could occur. Following this study, the Secretary of the Air Force and the Chief of Staff of the Air Force approved selection criteria for the KC-46A beddown.

The approved criteria were used to screen the enterprise of 83 candidate installations to identify those installations' capacity to successfully support the MOB 2 mission. The objective criteria included mission, capacity, environmental considerations, and cost.

The Secretary of the Air Force considered the objective screening results as well as qualitative operational factors in determining the alternative installations for the KC-46A MOB 2 mission. These military judgment factors included:

- Plans and Guidance
- Global and Regional Coverage
- Combatant Commander Support
- Total Force
- Beddown Timing
- Force Structure
- Training Requirements and Efficiencies
- Logistic Supportability
- Resources/Budgeting

The Strategic Basing Process described above resulted in the identification of five alternative bases for consideration.

- Forbes ANGS, Kansas
- JB MDL, New Jersey
- Pease ANGS, New Hampshire
- Pittsburgh ANGS, Pennsylvania
- Rickenbacker ANGS, Ohio

## **PROPOSED ACTION AND ALTERNATIVES**

### **Overview of the Proposed Action**

The USAF has a requirement to provide refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The NGB proposes to beddown one squadron of 12 KC-46A aircraft at one of five alternative locations: Forbes ANGS, Kansas; JB MDL, New Jersey; Pease ANGS, New Hampshire; Pittsburgh ANGS, Pennsylvania; or Rickenbacker ANGS, Ohio. Additionally, one active duty associate unit would be integrated with ANG personnel and equipment, enabling joint training and execution of missions using ANG-assigned aircraft. Furthermore, the NGB would implement construction projects associated with the aircraft beddown at the selected installation. Concurrent with the beddown of the KC-46A, the existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the USAF inventory.

As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action. The proposed beddown is estimated to begin in Fiscal Year (FY) 2018 for the NGB, and construction is estimated to begin FY 2015. Although proposed construction is necessary for the long-term viability of the beddown, aircraft operations with the KC-46A could begin prior to implementation of the construction. Table ES-1 summarizes the major components of each alternative.



**Table ES-1. Summary of Alternatives (Current/Proposed)**

	<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
Refueler Aircraft Type	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-135
Number of Refueler Aircraft (PAA)	12 / 12	8 / 12	8 / 12	16 / 12	18 / 12	Same as current
ARW Refueler Flying Hours	4,868 / 8,040	3,687 / 8,040	6,219 / 8,040	6,016 / 8,040	7,215 / 8,040	Same as current
Annual Sorties	1,478 / 2,010	1,112 / 2,010	1,382 / 2,010	1,569 / 2,010	2,014 / 2,010	Same as current
% Home-Station Operations	64% / 64%	75% / 75%	44% / 44%	59% / 59%	64% / 64%	Same as current
Home-Station Sorties	946 / 1,286	834 / 1,508	614 / 884	926 / 1,186	1,289 / 1,286	Same as current
Annual Airfield Operations Home-Station -- ANG	10,452 / 14,562	8,340 / 17,608	6,140 / 8,840	6,943 / 9,226	6,445 / 6,857	Same as current
Total Actual Airfield Operations (including ANG) based on 2012 FAA/Tower reports	24,630 / 28,740	62,686 / 71,875	37,410 / 40,110	139,217 / 141,500	39,436 / 39,848	Same as current
Total FAR Part 150 (Baseline 2006/2007) Approved Operations (including ANG)	N/A	N/A	N/A	321,436 <sup>1</sup> / 317,602	67,160 <sup>2</sup> / 60,877	Same as current
Construction -- new	Hangar modifications; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; new simulator building; ramp/taxiway modifications	Hangar modifications; building additions; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/ taxiway modifications	None
Construction -- renovations	Internal building renovations	Internal hangar renovations	Internal building renovations	Internal hangar renovations	Internal hangar renovations	None
Proposed Personnel Change (ANG and active duty)	+194	+287	+171	+59	+197	0

Notes: 1. 2006 Part 150 Study data

2. 2007 Part 150 Study data

ANGS = Air National Guard Station; JB MDL = Joint Base McGuire-Dix-Lakehurst; PAA = Primary Aerospace Vehicles Authorized; ARW = Air Refueling Wing; ANG = Air National Guard; FAR = Federal Aviation Regulations

## **Requirements of the Proposed Action**

### **Aircraft Beddown/Transition**

The KC-46A is planned to eventually replace existing USAF KC-135s. The NGB proposes to begin this process by replacing the aircraft at the selected location with 12 KC-46A operational aircraft (regardless of how many aircraft are currently at the alternative location). It is estimated that the 12 KC-46A aircraft would be beddown at the selected location beginning in FY 2018. The existing KC-135 aircraft at the selected location would either be relocated to another installation and/or would be retired out of the USAF inventory. The relocation/retirement actions would be evaluated under NEPA, as appropriate.

### **Facility and Infrastructure Requirements**

While basing the KC-46A would require certain facilities and infrastructure to support necessary training and operational requirements, utilizing existing infrastructure to the maximum extent feasible comprises a fundamental basis of the Proposed Action. Where existing facilities and infrastructure cannot meet the needs of the Proposed Action, the NGB would implement construction of necessary new and/or renovated infrastructure and facilities at the selected alternative installation. The type of construction needed would vary by installation (Table ES-1).

### **Personnel Changes**

The KC-46A would provide substantial expanded capabilities with only minor overall changes in military personnel; however, the mission would require basing sufficient and appropriate personnel to operate and maintain the Wing and to provide necessary support services. In addition, there would be an active duty associate unit based with the selected MOB 2 alternative installation. The change in number of personnel would vary by installation (Table ES-1).

### **KC-46A Operations**

Under the Proposed Action, the 12 PAA KC-46A aircraft would fly 670 hours per aircraft, per year, for a total of 8,040 hours annually. Because this is a new aircraft flying with a combination of ANG and associate active duty personnel, a uniform distribution of flying hours was assumed for each alternative. This is considered a conservative estimate and any deviation from this would likely be fewer hours flown. Thus, with an estimated average sortie duration (ASD) of 4.0 hours, the KC-46A aircraft would fly 2,010 sorties annually. The 2,010 annual sorties would be flown at a combination of the unit's home-station as well as off-station airfields, where they are able to train in a different setting than their home-station. Each of the five alternative installations currently fly a different number of airfield operations per sortie, as well as a different percent of home-station/off-station operations. In developing the analysis for each

installation, the installations' unique ratio of airfield operations was assumed to remain the same into the future, as were the percent of home-station/off-station operations. This resulted in a range of home-station airfield operations across the five action alternatives. Further, it is recognized that there is a recent trend toward an increasing use of flight simulators, which can reduce the number of hours flown. However, without a clear definition in the use of the simulator as opposed to actual airfield operations, the full 8,040 flying hour program has been analyzed for each action alternative. No changes are proposed to airfield departure/arrival patterns and tracks, flight profiles, and use of runways from those that are currently performed with the KC-135 at each MOB 2 location. Any existing noise abatement procedures would continue to be followed.

Under the Proposed Action, there would be some increases in the frequency of use and number of operations conducted in the airspace currently used by the KC-135, depending on the increase of sorties over the current baseline at each alternative installation. The KC-46A would use the same airspace currently used by the selected installation, with no new airspace required to support the mission. The types of airspace used would consist of published air refueling tracks, Anchors, Warning Areas, and Military Operations Areas (MOAs). These are found in the Department of Defense (DoD) AP/1B, Flight Information Publication, and Area Planning documents. All air refueling is accomplished above 10,000 feet mean sea level (MSL), although some MOAs are approved for lower altitude flight for training not involving air refueling. While a large percentage of air refueling occurs close to the home-station airfield, KC-135 aircraft refuel in other refueling tracks and Warning Areas located throughout the U.S. Under the Proposed Action, the KC-46A would use the airspace in the same manner as the KC-135 aircraft. It is anticipated that the KC-46A would operate in existing airspace and conduct flight operations similar to the existing KC-135 aircraft; therefore, detailed analysis of airspace has not been conducted in this EIS.

### **Identification of the Preferred Alternative**

The USAF has identified Pease ANG as the preferred alternative for the MOB 2 KC-46A beddown. The USAF selected Pease ANG based on an operational analysis, results of site surveys, and military judgment factors.

### **NO ACTION ALTERNATIVE**

The Council on Environmental Quality (CEQ) regulation 40 CFR § 1502.14(d) specifically requires analysis of the "No Action" alternative in all NEPA documents. Under the No Action Alternative, the proposed aircraft beddown would not occur, and the NGB would not implement the components described above under the five Action Alternatives. There would be no change in based aircraft; use of the airfield at the proposed locations; or use of Special Use Airspace

(SUA), construction, or personnel assigned to the KC-46A aircraft squadron. Under the No Action Alternative, the NGB would continue to conduct their current mission using the existing KC-135 aircraft with multiple configurations and crews that are not trained to accomplish every mission. This lack of standardized equipment and training throughout the fleet would continue to negatively impact the ability for KC-135 aircrews to support, on a large scale, multi-role missions or exploit new tactics and procedures. The continued use of the KC-135 aircraft would not meet the identified needs of the NGB or the USAF; however, this alternative is carried forward for analysis in this EIS per CEQ regulations, and as a baseline from which to compare the potential impacts of the Proposed Action and alternatives.

## **ENVIRONMENTAL CONSEQUENCES**

NEPA requires focused analysis on environmental resources and impact topics potentially affected by the Proposed Action or its alternatives. Based on the potential for the Proposed Action to affect the environment at and surrounding the five alternative locations, as well as public and agency concerns, several specific environmental resources were evaluated in detail in this EIS. The potential consequences of each alternative on these resources were evaluated and are summarized in Table ES-2.

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Noise</b>					
<p>Airfield operations would increase by 4,110 (39 percent increase in 190 ARW operations, 17 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 9,268 (111 percent increase in 108 WG operations, 15 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 2,700 (44 percent increase in 157 ARW operations, 7 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 3,834 (29 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2006]; and a 2 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 6,283 (48 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2007]; and a 1 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. The noise environment at each of the five alternative airfields would continue to be managed through their existing AICUZ or FAR Part 150 airfield compatibility programs. There would be no additional Noise impacts at any of the alternative installations under the No Action Alternative.</p>

Table ES-2. Summary of Impacts

Forbes ANG	JB MDL	Pease ANG	Pittsburgh ANG	Rickenbacker ANG	No Action Alternative
<b>Air Quality</b>					
Forbes ANG is located in an attainment area for all criteria pollutants. While there would be increases in operational criteria pollutant emissions, they would be below the PSD threshold, and would not be significant. Impacts from construction emissions and operational HAP emissions would be negligible.	The 108 WG installation is in a nonattainment area for O <sub>3</sub> (marginal nonattainment) and maintenance area for PM <sub>2.5</sub> and CO, and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO <sub>x</sub> , which would be above the <i>de minimis</i> threshold of 100 tpy. A conformity determination will be prepared. Impacts from construction emissions and operational HAP emissions are negligible.	The Pease ANG installation is in a maintenance area for O <sub>3</sub> , and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Pittsburgh ANG is located within a non-attainment area for PM <sub>2.5</sub> , a moderate nonattainment area for the 1997 8-hour O <sub>3</sub> standard, and is classified as a marginal nonattainment area for the 2008 8-hour O <sub>3</sub> standard, according to 40 CFR 81.339. The Pittsburgh ANG is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Rickenbacker ANG is located in a nonattainment area for the O <sub>3</sub> and PM <sub>2.5</sub> NAAQS. While there are increases in operational criteria pollutant emissions, they are below the PSD/ <i>de minimis</i> thresholds for all pollutants and are not significant. Impacts from construction emissions and operational HAP emissions are negligible.	Air Quality at each alternative airfield would remain as it currently is. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. Emissions at each of the alternative installations would continue to be in compliance with their respective SIPs. There would be no additional impacts to Air Quality at each alternative installation under the No Action Alternative.

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Safety</b>					
There would be a 39 percent increase in actual 190 ARW airfield operations (17 percent increase in total airfield operations) at Forbes Field Airport with commensurate increase in mishap and BASH potential.	There would be a 111 percent increase in actual 108 WG airfield operations (15 percent increase in total airfield operations) at JB MDL with a commensurate increase in mishap and BASH potential.	There would be a 44 percent increase in actual 157 ARW airfield operations (7 percent increase in total airfield operations) at Portsmouth IAP with a commensurate increase in mishap and BASH potential.	There would be a 33 percent increase in actual 2012 171 ARW airfield operations (2 percent increase in total airfield operations) at Pittsburgh IAP with a commensurate increase in mishap and BASH potential.	There would be a 6 percent increase over the actual 2012 121 ARW airfield operations (1 percent increase in total airfield operations) at Rickenbacker IAP with a commensurate increase in mishap and BASH potential.	Both ground and flight safety at each alternative airfield would remain as they currently are. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Safety under the No Action Alternative.
Construction activities would involve no unusual or extraordinary techniques. During construction, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.					
<b>Soils and Water</b>					
There would be approximately 5.9 acres of temporary soil disturbance and no new impervious surface as a result of the proposed construction.	There would be approximately 4.7 acres of temporary soil disturbance and 2.4 acres of new impervious surface as a result of the proposed construction.	There would be approximately 3.0 acres of temporary soil disturbance and 0.5 acres of new impervious surface as a result of the proposed construction.	There would be approximately 4.3 acres of temporary soil disturbance and 2.0 acres of new impervious surface as a result of the proposed construction.	There would be approximately 8.5 acres of temporary soil disturbance and 0.3 acres of new impervious surface as a result of the proposed construction.	Soils and Water Resources at each alternative airfield would remain as they currently are. There would be no additional impacts to Soils and Water Resources as a result of the No Action alternative.
To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.		To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore, the Farmland Protection Policy Act does not apply to this alternative. As a result, impacts to soil and water resources would be negligible.			



**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Biological Resources</b>					
<p>No impacts to vegetation and wetlands.</p> <p>Impacts to wildlife species from operational noise would be imperceptibly beneficial due to the slight decrease in noise.</p> <p>39 percent increase in 190 ARW (17 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to wildlife due to construction would be negligible.</p> <p>No special status species or critical habitat is known to occur on Forbes Field Airport; therefore, there would be no impacts to these species.</p>	<p>Impacts to vegetation would be minor.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>111 percent increase in 108 WG (15 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed species or critical habitat is known to occur on McGuire Field.</p> <p>Six state listed species are known to occur on McGuire Field. There would be no impacts to federally listed and impacts to state listed species would be minor.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>44 percent increase in 157 ARW (7 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Portsmouth IAP; therefore, there would be no impacts to federally listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No significant impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 33 percent increase in 171 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed or critical habitat is known to occur on Pittsburgh IAP; therefore, there would be no impacts to federally listed species.</p> <p>There would be no impacts to state listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 6 percent increase in 121 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Rickenbacker IAP; therefore, there would be no impacts to federally listed species.</p>	<p>There would be no change to Biological Resources under this alternative.</p> <p>There would be no additional impacts to Biological Resources as a result of the No Action Alternative.</p>

Table ES-2. Summary of Impacts

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Cultural Resources</b>					
Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. Minor interior modifications to Building 679 would not affect the NRHP-eligibility of the building. The Kansas SHPO has concurred with these findings. The installation has been intensively surveyed and no known traditional resources are known to occur. Two responses have been received from the Kaw Nation and the Wichita and Affiliated Tribes stating that they have no objection to the Proposed Action. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts	Construction activities associated with this alternative would be primarily limited to the developed areas of the installation in the areas of the aircraft hangars and airfield pavements. A small amount of construction (0.15 acre) would occur in forested area near this developed area. Based on previous archaeological surveys at McGuire Field, the area of proposed construction does not contain any known NRHP-eligible sites and is considered to have a low potential for containing buried materials. The New Jersey SHPO has concurred with these findings. No traditional resources have been identified. Responses from the Delaware Tribe of Indians and the Delaware Nation stated that their review indicated no religious or culturally significant sites in the area. SHPO consultation for this EIS has provided concurrence that no historic properties would be	Based on previous archaeological surveys on the installation, the area of proposed construction does not contain any known NRHP-eligible sites or traditional resources. Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The New Hampshire SHPO has concurred with these findings. The Penobscot Indian Nation is the only federally-recognized tribal entity affiliated with Pease ANG, and has responded stating that they have no issues with the Proposed Action. No impacts to cultural impacts would be expected to occur.	The installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the Pittsburgh ANG. Construction activities associated with this alternative are limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements and all impacts would be negligible. Correspondence has been received from all tribes consulted including the Seneca Nation of Indians, the Cayuga Nation of New York, the Tonowanda Band of Seneca, Tuscarora Nation of New York, and the Onondaga Nation of New York stating that they have no objection to the Proposed Action	Construction activities at Rickenbacker ANG would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The installation has been intensively surveyed for cultural resources and no traditional cultural resources are known to exist in the area. The one significant archaeological resource that is located within the installation is not within the proposed construction areas and would not be impacted. Two NRHP-eligible hangars (883 and 885) could be adversely impacted by construction under this alternative. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, additional consultation would be conducted to minimize and mitigate	Under the No Action Alternative, Cultural Resources at each alternative installation would remain as they currently are. None of the proposed facility construction/renovations would occur at any of the installations, and thus, there would be no potential impacts to facilities that are eligible for listing on the NRHP. There would be no surface disturbance from construction activities, and thus no potential to impact unknown archaeological resources. There would be no additional impacts to Cultural Resources as a result of the No Action Alternative.

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Forbes ANG is now complete.	affected under the proposed action.			adverse effects to these buildings. Correspondence has been received from the Peoria Tribe of Indians, the Pokagon Band of Potawatomi Indians, the Turtle Mountain Band of Chippewa Indians of North Dakota, the Delaware Nation, and the Shawnee Tribe who indicated that they had no objection to the proposed project. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Rickenbacker ANG is now complete.	
<b>Land Use</b>					
Total annual airfield operations would increase by 4,110 (17 percent).	Total annual airfield operations would increase by 9,268 (15 percent).	Total annual airfield operations would increase by 2,700 (44 percent).	Airfield operations would decrease by 3,834 (29 percent decrease) from the currently	The number of airfield operations would decrease by 6,283 (48 percent decrease) from the	Land Use at each alternative airfield would remain as it currently is. Each of the five installations would retain the

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres (55 acres off airport-controlled property). Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would be compatible with current land use and zoning designations and would result in imperceptibly beneficial impacts by reducing the off-airport areas currently exposed to a DNL between 65 dB and 70 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour off DoD-controlled property would increase by 419 acres. An additional 8 acres of residential use areas would be exposed to greater than 65 dB DNL.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in minor adverse impacts due to an increase in off-airport areas (including residential areas) exposed to a DNL between 65 dB and 75 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in negligible impacts due to an increase in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>published FAR Part 150 Noise Compatibility Program (2006), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>currently published FAR Part 150 Noise Compatibility Program (2007), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-controlled property that lie within the 65 dB contour.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Land Use under the No Action Alternative at any of the alternative locations.</p>

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Infrastructure and Transportation</b>					
<p>Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increased demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.</p>					<p>Infrastructure and Transportation at each alternative installation would remain as they currently are. There would be no change to the based personnel at any of the alternative locations. There would be no increase in use of various utilities or roadway systems under this alternative. There would be no additional impacts under the No Action Alternative.</p>

Table ES-2. Summary of Impacts

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Hazardous Materials and Waste</b>					
There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	One of the ERP Sites, SS-39, overlaps with a portion of the existing fuel hydrants that would be capped, as well as the proposed addition to Hangar 3336. Remedial investigation is on-going with this site. It is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations. If contaminated media were encountered during the course of site preparation or site development, work would cease until 108 WG Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 171 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media are encountered during the course of site preparation or site development, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	<p>Hazardous Materials and Wastes at each alternative installation would remain as described in the baseline section for each alternative location. The benefit of eliminating ozone depleting substances with the KC-46A would not be realized.</p> <p>The throughput and management of hazardous materials and wastes would not change from baseline conditions.</p> <p>There would be no additional impacts to Hazardous Materials and Wastes under the No Action Alternative.</p>

**Table ES-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
There would not be an increased risk of hazardous waste releases or exposure from this alternative. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations.					
<b>Socioeconomics</b>					
Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.					<p>Socioeconomics at each alternative installation would remain as described in the baseline section for each alternative. The minor economic benefit of additional based personnel and construction activity would not occur at any of the alternative installations.</p> <p>There would be no additional impacts to Socioeconomics under the No Action Alternative.</p>



Table ES-2. Summary of Impacts

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Environmental Justice and the Protection of Children</b>					
<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Forbes Field Airport exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>The percentage of minority and low-income persons affected would remain approximately the same as baseline.</p> <p>There would be no disproportionate impacts to minority or low-income populations. The child development center that is currently under the 65 dB contour would be located under the 70 dB contour. There would be no special health or safety risks to children.</p>	<p>There are no residential areas within the noise contours. No additional schools would be located within the vicinity of Portsmouth IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Pittsburgh IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>Under the No Action Alternative, Environmental Justice and the Protection of Children at each alternative installation would remain as described in the baseline section for each alternative. There were no disproportionate impacts to low-income, minority, or children identified under any of the action alternatives. There would be no additional impacts as a result of the No Action Alternative.</p>

Notes: 190 ARW = 190<sup>th</sup> Air Refueling Wing; dB = decibel; DNL = Day-Night Average Sound Level; DoD = Department of Defense; 108 WG = 108<sup>th</sup> Wing; 157 ARW = 157<sup>th</sup> Air Refueling Wing; FAR = Federal Aviation Regulations; AICUZ = Air Installation Compatible Use Zone; ANG = Air National Guard Station; PSD = Prevention of Significant Deterioration; HAP = hazardous air pollutant; O<sub>3</sub> = ozone; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; tpy = tons per year; CFR = Code of Federal Regulations; SIP = State Implementation Plan; BASH = Bird/Wildlife Aircraft Strike Hazard; JB MDL = Joint Base McGuire-Dix-Lakehurst; IAP = International Airport; 171 ARW = 171<sup>st</sup> Air Refueling Wing; 121 ARW = 121<sup>st</sup> Air Refueling Wing; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office; ERP = Environmental Restoration Program; LBP = lead-based paint; ACM = asbestos-containing material; USAF = United States Air Force

## CHAPTER 1

# PURPOSE AND NEED FOR THE PROPOSED ACTION

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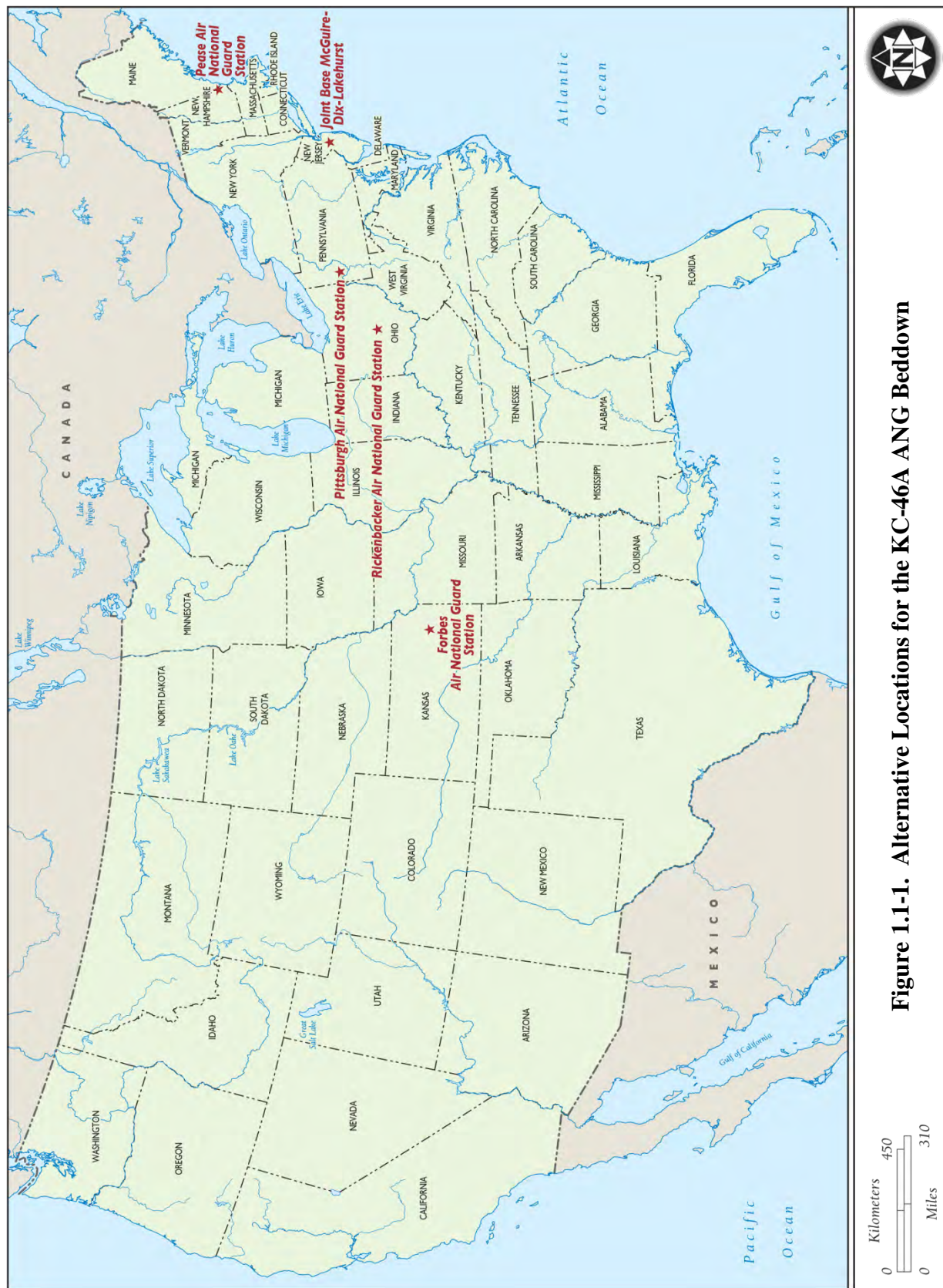
### 1.1 INTRODUCTION

The United States Air Force (USAF) plans to replace existing KC-135s with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF plans to identify locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the Second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit. The FTU alternative installations are Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include both Altus and McConnell AFBs, in addition to Fairchild AFB, Washington; and Grand Forks AFB, North Dakota. This particular document will analyze the potential environmental impacts associated with the MOB 2 beddown only, and will further reference the proposed FTU and MOB 1 beddowns only as necessary in the context of the proposed MOB 2 beddown. A separate Environmental Impact Statement (EIS) is currently being prepared for the FTU and MOB 1 beddowns.

The Secretary of the Air Force proposes to beddown KC-46A aircraft for MOB 2 at one of five alternative locations. The goal of KC-46A basing and fielding is to continue to provide optimum Combatant Commander support and to efficiently meet regional and global receiver demands while replacing existing KC-135s. This action would involve the beddown of one KC-46A squadron consisting of 12 Primary Aerospace Vehicles Authorized (PAA), and establishing a KC-46A Main Operating Base (MOB). Five alternative ANG locations (Figure 1.1-1) were selected for this beddown based on criteria identified in Section 2.2:



- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.



Concurrent with the beddown of the 12 KC-46A, 12 existing KC-135 aircraft would be retired out of the USAF fleet. The existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the USAF inventory, depending on the age and maintenance status of each aircraft. Separate documentation would be prepared if the KC-135 aircraft are relocated to another installation. The beddown of the MOB 2 KC-46A would follow the Total Force Integration (TFI) concept that was enacted into law through the passage of the 2008 National Defense Authorization Act (NDAA), pairing two USAF component units (host and associate) together to operate as one. TFI supports USAF transformation by developing, promoting, and implementing new and creative organizational constructs and by advocating changes in personnel policy that enhance the integration of active, reserve, and civilian work forces. In support of TFI, an active duty associate unit would be integrated with ANG personnel and equipment under any of the action alternatives, enabling joint training and execution of missions using ANG-assigned aircraft. The ANG host unit would be assigned principal responsibility of the physical resources for mission accomplishment (aircraft, equipment, facilities) and the active duty associate unit would share those resources.

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force Instruction (AFI) 32-7061 as promulgated at 32 CFR Part 989 *et seq.*, *Environmental Impact Analysis Process*, the National Guard Bureau (NGB) has prepared this EIS, that considers the potential consequences to the human and natural environment that may result from implementation of this action.

## **1.2 PURPOSE AND NEED FOR THE PROPOSED ACTION**

### **1.2.1 Purpose of Action**

Air refueling is the backbone of the United States' (U.S.) ability to project global reach and combat power. Air refueling aircraft, also known as "tankers," are a joint asset, serving our sister services and U.S. allies who rely on the range and flexibility of tankers to strengthen their contribution to the coalition fight. Without a robust air refueling capability, U.S. forces would be limited in their ability to provide global reach. The original mission of the current USAF air refueling aircraft, the KC-135 Stratotanker, was primarily to refuel strategic bomber aircraft while in flight, which enhances the ability of aircraft to provide sustained mission capability without landing to refuel. Through the course of the KC-135's service life, structural and functional modifications have added capabilities to select aircraft. The result is a fleet of aircraft with multiple configurations and crews that may not be trained to accomplish every mission for which the aircraft is capable. This lack of standardized equipment and training throughout the fleet limits the ability for KC-135s to support, on a large scale, multi-role missions or exploit

new tactics and procedures. The following are examples of capabilities that the current KC-135 fleet lacks.

- **Multi-Point Refueling.** Simultaneous refueling of two probe-equipped receiver aircraft from the same tanker is limited to 20 sets of wing-mounted refueling pods installed on the aircraft for the fleet of tankers.
- **Boom/Probe and Drogue Refueling.** With the exception of the refueling pod equipped aircraft, the KC-135 fleet does not have capability to perform boom and probe/drogue refueling on the same sortie<sup>1</sup>.
- **Receiver capabilities.** Only eight KC-135s have air refueling receptacles, which means that only eight of the KC-135 aircraft in the fleet can receive fuel in flight. This restricts force extension and limits persistence over the battlefield. It also results in inefficient use of valuable, but limited air refueling assets and limits flexibility within the maintenance schedule.
- **Night Vision Imaging System (NVIS).** The KC-135 fleet currently lacks a standard NVIS for tanker cockpits and boom operator positions. Additionally, exterior lighting is not currently NVIS-compatible, which prohibits air refueling in tactical NVIS (low vision) conditions. This limits the ability to perform covert air refueling operations at night, and degrades effectiveness of special operations support.
- **Command, Control, Communications, and Computers (C4).** KC-135s lack robust connectivity to command and control agencies. No secure tactical datalink exists and these aircraft have limited C4 connectivity to other combat, combat support, and mobility aircraft.
- **Defensive Protection.** KC-135s currently are not normally equipped with aircraft defensive systems, which limits aircraft from operating in anything other than a low-threat environment.

The purpose of this action is to ensure that the NGB will have air refueling support for both conventional global strike and nuclear deterrence operations into the future. The purpose of the KC-46A is to support air superiority through air refueling of fighter, bomber, attack, special operations, Command and Control, Intelligence, Surveillance and Reconnaissance, and transport aircraft; and to support employment of combat units deploying to areas of operations. Finally, the KC-46A will also support the Command and Control (C2) core function as a communications “gateway” when equipped with a roll-on gateway system to provide connectivity between tactical network partners in theater.

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<sup>1</sup> Probe and drogue refueling employs a flexible hose that trails from the tanker aircraft. The drogue is a fitting resembling a windsock, and is attached with a valve to a flexible hose.



## **1.2.2      Need for Action**

In support of the USAF worldwide operations and as part of the TFI, the NGB requires a refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The KC-46A is the USAF's newest air refueling aircraft that meets this need. NGB requires a location to beddown the KC-46A aircraft in support of MOB 2. The base will support the beddown and training of crewmembers and personnel in the operation and maintenance of the KC-46A aircraft in an appropriate geographic location that can provide sufficient airfield, facilities, infrastructure, and airspace to support the KC-46A training and operations.

## **1.3              BACKGROUND OF THE KC-46A**

### **1.3.1          Aircraft Characteristics**

This section compares the aircraft characteristics of the KC-46A and the existing KC-135. Some key specifications of the KC-135 and the KC-46A are compared in Table 1.3-1

**Table 1.3-1. Comparison of KC-135 and KC-46A**

<i>Specification</i>	<i>KC-135</i>	<i>KC-46A</i>
Length	136 feet, 3 inches	165 feet, 6 inches
Height	41 feet, 8 inches	52 feet, 10 inches
Wingspan	130 feet, 10 inches	156 feet, 1 inch
Power Plant	4 F108 CF-100	2 Pratt Whitney 4062
Takeoff Thrust	21,634 pounds per engine	62,000 pounds per engine
Speed	530 miles per hour (mph) at 30,000 feet	530 mph at 30,000 feet
Ceiling	50,000 feet	40,100 feet
Maximum Take-off Weight	322,500 pounds	415,000 pounds
Maximum Fuel Capacity	200,000 pounds	212,000 pounds
Pallets/Palletized Cargo Weight Capacity	6/36,000 pounds	18/65,000 pounds
Crew	3 crewmembers	3 crewmembers
Receiver Fuel Transfer	Very limited	Yes
Fuel Jettison	Yes	Yes
Night Vision Imaging System	No	Yes
Multi-point Refueling	Very limited	Yes
C2 Network	No	Yes
Defensive Protection	Very limited	Yes
Aeromedical Evacuation	Limited	Yes

### 1.3.2 Aircraft Characteristics of the KC-135

The KC-135 Stratotanker was developed in 1954 as the USAF's first jet-powered refueling tanker to replace the KC-97 Stratotanker and is derived from a commercial Boeing 367-80 commercial passenger plane. Between 1956 and 1966, 820 KC-135 aircraft of many different variations were built. Over the last 50 years, the KC-135 fleet has undergone substantial modifications to add capability. The KC-135 was originally developed to refuel strategic bombers. It was used in the Vietnam War and in all conflicts up to and



KC-135

including Operation Enduring Freedom in Afghanistan. For this EIS, all KC-135 models, including the current R model, are referred to as KC-135. Originally, all KC-135s were equipped with four Pratt & Whitney J-57-P-59W turbojet engines capable of producing approximately 13,000 pounds of thrust each. The current R models were upgraded to use the CFM56-2B1 (Military designation F108-CF-100) turbofan engines, which are capable of generating approximately 21,634 pounds of thrust per engine. The KC-135 has a maximum take-off weight of more than 322,500 pounds and the ability to off-load in excess of 150,000 pounds of fuel. In addition, the KC-135 is capable of transporting up to 36,000 pounds of palletized cargo and/or ambulatory patients during aeromedical evacuations. A cargo deck above the refueling system can hold a mixed load of passengers and cargo depending on the fuel storage configuration. The KC-135 pumps fuel through the flying boom, but some aircraft have been specially fitted with wing pods to allow a multi-point aerial refueling drogue system. As noted previously, the aircraft is limited by not possessing the capability for receiver fuel transfer, NVIS, defensive protection, and C2 capabilities.



### **1.3.3 Aircraft Characteristics of the KC-46A**

The KC-46A is derived from a commercial Boeing 767-200ER series aircraft and will be powered by two Pratt & Whitney 4062 engines with thrust reversers removed. Each engine will have the capability to provide approximately 62,000 pounds of thrust. The aircraft will be Federal Aviation Administration (FAA)-certified for worldwide operations. The KC-46A is a fully provisioned version of the Boeing 767-2C, FAA Amended Type Certified aircraft. It is required to meet the FAA Part 36 Stage 4 (most restrictive commercial aircraft noise level standard) and the International Congress of Aeronautical



Organizations, Committee of Environmental Protection 6 air contaminant emission limits. Three crewmembers, (pilot, copilot, and boom operator) will operate the aircraft with permanent seating for an additional 12 aircrew members. With new technology and a maximum fuel capacity expected to be over 212,000 pounds, the KC-46A is capable of accomplishing all current Air Mobility Command (AMC) refueling missions.

The KC-46A will be able to refuel any certified fixed-wing receiver-capable aircraft on any mission both day and night. The aircraft will be equipped with a modernized KC-10 refueling boom integrated with proven fly-by-wire control system and will have the ability to deliver fuel through a centerline hose and drogue system, which adds additional mission capability independent of the boom system.

This aircraft will be capable of accomplishing multi-role missions. By trading fuel for cargo, it will be able to carry up to 18 standard cargo pallets with a total palletized cargo payload of up to 65,000 pounds. With a far greater cargo area contour than the KC-135, KC-46A centerline pallet positions 1 through 8 can be built to carry full height (96-inch-high) cargo without the need for contouring, compared to KC-135 pallets, which are typically restricted to 65-inch-high cargo and must be contoured on the right-hand side starting at 50 inches off the top pallet surface. In normal operations, the KC-46A can be configured to carry 58 passengers and will be capable of providing urgent Aeromedical Evacuation, transporting up to 50 medical patients (24 litters/26 ambulatory).

Additional features include a flush-mounted air refueling receptacle, wing air refueling pods capability, boom air refueling camera and computer control systems, defensive and communication systems, NVIS/covert lighting, and military radio/navigation receivers. The boom operator will control the refueling systems from the crew compartment via the Air

Refueling Operating Station. A series of cameras mounted on the tanker's fuselage provide a 185-degree field of view under day and night lighting conditions. Imaging may be captured in three-dimensional or two-dimensional high-definition video. Fuel is automatically transferred within the aircraft to maintain center of gravity in all axes. The flow of fuel in, out, and within the aircraft can be manually or automatically controlled by the aircraft and can be manually controlled by the aircrew via control display units at the appropriate duty station.

In addition to fuel and cargo transport, each KC-46A aircraft will possess a secure airborne communications capability, which will provide beyond-the-line-of-sight messaging and line-of-sight tactical datalink multi-modal communications via secure networks. Hosting a suite of network-centric communications equipment, the KC-46A will function with most current C2 systems. The KC-46A will also support the C2 core function as a communications "gateway" when equipped with a roll-on gateway system to provide connectivity between tactical network partners in theater.

This aircraft will have self-defense and protection (both active and passive) capabilities and the necessary operational environment awareness to mitigate threats, but will not be operated in areas of high threats without requesting suppression of enemy air defenses and air support. This aircraft is capable of ferrying fuel into semi-austere airfields. By following Forward Area Refueling Point procedures, the aircraft can off-load fuel into fuel pits, bladders, trucks, or other aircraft, with or without the engines running, without the need for special equipment. The aircraft will be able to operate at certain night vision goggle and/or defensive system-required airfields with a minimum of 7,000 feet of paved runway available for take-off/landing.

The aircraft will be capable of operating in day-night and adverse weather conditions over vast distances to enable deployment, employment, sustainment, and redeployment of U.S., joint, allied, and coalition forces.

### **1.3.4 Training Requirements**

KC-46A aircrews at the selected MOB 2 installation would complete operational sorties as part of their global reach missions and local training sorties to maintain proficiency in the aircraft. Training requirements for the KC-46A aircraft would be similar to those depicted for the KC-135 flight crews, which are detailed in AFI 11-2KC-135 Vol I (2012). An AFI 11-2KC-46 Vol. 1 is currently being developed to provide each flight crew member the minimum semi-annual and annual flying training requirements to qualify and maintain proficiency/currency (allowing for unsupervised flight) for the KC-46A and will provide the same minimum requirements for training.

Flight training, including air refueling and training in the flight simulator, is designed to provide basic and continuation aircrew training needs. A typical KC-46A proficiency training sortie would be very similar to a KC-135 training sortie and would include a departure from the installation, climb to altitude for air refueling training in appropriate airspace, return to the home installation for additional closed pattern training before landing for the sortie termination. Proficiency training sorties to fulfill the requirements of the AFI above typically depart from and return to the home installation on the same day. A global reach mission typically departs the home installation, returns on a later day, and accomplishes training as a by-product of the operational mission. Although some in-flight training and certification would occur, the majority of KC-46A system continuation training would be completed in simulators.

#### **1.4 THE ENVIRONMENTAL IMPACT ANALYSIS PROCESS**

In accordance with NEPA of 1969 (42 USC 4321-4347), CEQ *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500-1508), and AFI 32-7061 as promulgated at 32 CFR Part 989 *et seq.*, *Environmental Impact Analysis Process*, the NGB and USAF have prepared this EIS, which considers the potential consequences to the human and natural environment that may result from implementation of these activities.

NEPA requires federal agencies to take into consideration the potential environmental consequences of proposed actions in their decision-making process. The intent of NEPA is to protect, restore, and enhance the environment through well-informed federal decisions. The CEQ was established under NEPA to implement and oversee federal policy in this process. The CEQ subsequently issued the *Regulations for Implementing the Procedural Provisions of NEPA* (40 CFR Parts 1500-1508) (CEQ 1978).

The activities addressed within this document constitute a major federal action and therefore must be assessed in accordance with NEPA. To comply with NEPA, as well as other pertinent environmental requirements, the decision-making process for the Proposed Action includes the development of this EIS to address the environmental issues related to the proposed activities.

## 1.5 PUBLIC INVOLVEMENT/ENVIRONMENTAL COORDINATION

This EIS was prepared in compliance with all applicable local, state, and federal environmental regulations. An EIS is prepared as a tool for compiling information for a proposal and provides a full and fair discussion of environmental impacts to the natural and human environment. Reasonable alternatives to the Proposed Action, including the No Action Alternative are also evaluated in an EIS. The USAF has evaluated all reasonable alternatives to ensure that an informed decision is made after review and consideration of the potential environmental consequences.

Compliance with NEPA guidance for preparation of an EIS involves several critical steps summarized below.

1. *Announce that an EIS will be prepared.* For this EIS, a Notice of Intent (NOI) was published in the *Federal Register* on May 17, 2013.
2. *Conduct scoping.* This is the first major step in identifying the relevant issues to be analyzed in detail, and to eliminate issues that are not relevant. Scoping for this EIS occurred between May 17 and July 5, 2013. Throughout the scoping period, the NGB actively solicited public comments on the proposal. Information related to the proposal has been disseminated to the public through several avenues, including newspaper advertisements, public service announcements, a project website ([www.angkc46aeis.com](http://www.angkc46aeis.com)), and periodic fact sheets.

Executive Order (EO) 12372, *Intergovernmental Review of Federal Programs*, requires intergovernmental notifications prior to making any detailed statement of environmental impacts. Through the process of Interagency and Intergovernmental Coordination for Environmental Planning, the proponent must notify concerned federal, state, and local agencies and allow them sufficient time to evaluate potential environmental impacts of a Proposed Action. Comments from these agencies are subsequently incorporated into the environmental impact analysis process. Letters requesting input have been distributed to federal, state, and local agencies and are a part of the official project record. Appendix B



provides a list of relevant federal, state, and local agencies as well as sample notification letters, and comments received during the scoping period.

On November 27, 1999, the Department of Defense (DoD) promulgated its Annotated American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis. This Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the respective services (DoD American Indian/Alaska Native Policy), as does DoD Instruction 4710.02, *Interaction with Federally Recognized Tribes* (September 14, 2006). In addition, coordination with federally recognized Native American tribes must occur in accordance with EO 13175, *Consultation and Coordination with Indian Tribal Governments*. Section 106 consultation and government-to-government consultation for this project continued throughout the duration of EIS preparation. NGB has initiated government-to-government consultation with federally-recognized tribes that are historically, culturally, and linguistically affiliated with the area in recognition of the tribes' sovereignty as nations. This consultation also provides additional information and is used for Section 106 consultation (see Appendix B for example letters and responses received from tribes).

Concerns and comments identified during the scoping process have been included in the analyses, as appropriate. Scoping meetings were held in New Egypt, New Jersey and Moon Township, Pennsylvania on June 4; Portsmouth, New Hampshire and Columbus, Ohio on June 6; and Topeka, Kansas on June 20, 2013. During the scoping meetings, the NGB presented details about the proposal, the NEPA process, and provided an opportunity for public and agency involvement. In addition to receiving verbal and written comments at the scoping meeting, the NGB has also accepted written comments from the public and agencies through U.S. mail, website, and email. The majority of the comments received during the official comment submittal period (17 May to 5 July 2013) were in support of the KC-46A beddown at each specific location. However, there were some concerns regarding noise impacts and aircraft emissions. To the extent possible, scoping comments have been used to shape the analysis and focus the issues in this EIS.

3. *Prepare a Draft EIS.* The Draft EIS is a comprehensive document for public and agency review. The Draft EIS describes the purpose and need of the Proposed Action and alternatives; presents the existing conditions in the region potentially affected; and provides analysis of the environmental consequences of the Proposed Action and

alternatives, including the No Action Alternative. The Draft EIS was distributed to agencies, regional libraries, and members of the public who requested copies.

4. *Public/Agency Review.* There was a 45-day public comment period following the Notice of Availability (NOA) for the Draft EIS, which was published in the *Federal Register* on February 7, 2014. This initiated the public comment period, and public hearings were held at each alternative location. During the public hearings, the NGB presented details about the proposal, the NEPA process, and provided attendees an opportunity to provide written and/or oral comments. In addition to receiving verbal and written comments at the hearings, the NGB also accepted written comments from the public and agencies through U.S. mail, website, and email. All substantive comments received during the public comment period have been fully considered and addressed in the Final EIS, as appropriate. Written comments submitted at the public hearing and those received via other means were given equal consideration in the preparation of the Final EIS.

Generally, substantive comments are regarded as those comments that challenge the analysis, methodologies, or information in the Draft EIS as being factually inaccurate or analytically inadequate; that identify impacts not analyzed or develop and evaluate reasonable alternatives or feasible mitigations not considered by the agency; or that offer specific information that may have a bearing on the decision, such as differences in interpretations of significance or of scientific or technical conclusions. Non-substantive comments, which do not require an agency response, are generally considered those comments that express a conclusion, an opinion, or a vote for or against the proposal itself, or some aspect of it; that state a position for or against a particular alternative; or that otherwise state a personal preference or opinion.

5. *Prepare a Final EIS.* The Final EIS has been prepared following the public comment period and includes all written comments and verbal testimony from public and agency reviewers during the public hearing and the comment period. The Final EIS has been revised to reflect public and agency comments, the proponent's responses, and additional information received from reviewers. The Final EIS provides the decision-maker with a comprehensive review of the potential environmental consequences of selecting any of the alternatives carried forward for detailed analysis. A NOA will be published in the *Federal Register* to announce availability of the Final EIS.
6. *Issue a Record of Decision.* The final step in the NEPA process is approval of the Record of Decision (ROD). After the NOA is published in the *Federal Register*, there is a 30-day waiting period before the ROD is signed. The ROD will identify the action that has been selected by the Secretary of the Air Force and what management actions or other

measures would be carried out to reduce, where possible, adverse impacts to the environment.

## **1.6 LEAD AND COOPERATING AGENCIES**

The role of a federal agency in the NEPA process depends on the agency's expertise and relationship to the proposed undertaking. The agency carrying out the proposed action is responsible for complying with the requirements of NEPA. In some cases, there may be more than one federal agency involved in an undertaking. In this situation, a lead agency is designated to supervise preparation of the environmental analysis. Federal agencies, together with state, tribal, or local agencies, may act as joint lead agencies. The NGB and USAF are the proponents for this proposal and are the responsible agencies for preparation of the EIS. As defined in 40 CFR § 1508.5, a cooperating agency is "any Federal agency other than a lead agency that has jurisdiction by law or special expertise with respect to any environmental impact involved in a proposal (or a reasonable alternative) for legislation or other major Federal action significantly affecting the quality of the human environment. A state or local agency of similar qualifications, or when the effects are on a reservation, an Indian Tribe may, by agreement with the lead agency, become a cooperating agency." No cooperating agencies have been identified for this EIS.

## **1.7 ORGANIZATION OF THIS ENVIRONMENTAL IMPACT STATEMENT**

Chapter 2 describes the Proposed Action and reasonable alternatives, including the No Action Alternative, and the alternative selection process. Chapter 3 is organized by each of the five alternative bases and presents the environmental baseline conditions at each base. Chapter 4 is also organized by each of the five action alternatives as well as the No Action alternative, and presents the potential environmental impacts associated with implementation of any of the alternatives. Chapter 5 identifies past, present, and reasonably foreseeable projects within the regional context of each of the five alternative locations, and describes potential cumulative impacts of the Proposed Action in combination with these other regional actions at each alternative base. Chapter 6 lists the references cited in the document. Chapter 7 lists those agencies, organizations, and persons that were contacted during the preparation of this EIS. Chapter 8 contains the list of preparers and contributors. In addition to the main text, the following appendices are included in this document: Appendix A, Resource Definitions and Methodologies; Appendix B, Correspondence; Appendix C, Background Information for the Noise Analysis; Appendix D, Air Quality; and Appendix E, Special Status Species Lists.



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## **CHAPTER 2**

# **DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES**

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### **2.1 PROPOSED ACTION**

#### **2.1.1 Overview of the Proposed Action**

The USAF has a requirement to provide refueling aircraft that will be equipped with major technological improvements designed to enhance operations and increase mission effectiveness. The NGB proposes to beddown one squadron of 12 KC-46A aircraft at one of five alternative locations: Forbes ANG, Kansas; JB MDL, New Jersey; Pease ANG, New Hampshire; Pittsburgh ANG, Pennsylvania; or Rickenbacker ANG, Ohio. Additionally, one active duty associate unit would be integrated with ANG personnel and equipment, enabling joint training and execution of missions using ANG-assigned aircraft. Furthermore, the NGB would implement construction projects associated with the aircraft beddown at the selected installation. Concurrent with the beddown of the KC-46A, the existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or retired out of the USAF inventory.

As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action. The proposed beddown is estimated to begin in FY 2018 for the NGB, and construction is estimated to begin in FY 2015. Although proposed construction is necessary for the long-term viability of the beddown, aircraft operations with the KC-46A could begin prior to implementation of the construction.

#### **2.1.2 Requirements of the Proposed Action**

##### **2.1.2.1 Aircraft Beddown/Transition**

The KC-46A is planned to eventually replace existing USAF KC-135s. The NGB proposes to begin this process by replacing the aircraft at the selected location with 12 KC-46A operational aircraft (regardless of how many aircraft are currently at the alternative location). It is estimated that the 12 KC-46A aircraft would be beddown at the selected location beginning in FY 2018. The existing KC-135 aircraft at the selected location would either be relocated to another

installation and/or would be retired out of the USAF inventory. The relocation/retirement actions would be evaluated under NEPA, as appropriate.

#### 2.1.2.2 Facility and Infrastructure Requirements

While basing the KC-46A would require certain facilities and infrastructure to support necessary training and operational requirements, utilizing existing infrastructure to the maximum extent feasible comprises a fundamental basis of the Proposed Action. Where existing facilities and infrastructure cannot meet the needs of the Proposed Action, the NGB would implement construction of necessary new and/or renovated infrastructure and facilities at the selected alternative installation. The type of construction needed would vary by installation and is detailed further in each respective installation Sections 2.3.1 through 2.3.5.

Facility requirements include:

- *Squadron Operations Facility* – Necessary for daily operational activities.
- *Flight Simulator/Boom Operator Training Facility* - Major aircrew training devices required for a 12 PAA KC-46A aircrew continuation training program include one Flight Simulator, one Boom Operator Trainer, and a Fuselage Trainer.
- *Academic Training Facility* (ANG uses *Reserve Forces general purpose training areas*) - Space is necessary to provide space for classroom training and brief/debrief areas.
- *Aircrew Flight Equipment Facility* (ANG incorporates this facility with *Squadron Operations*) – Aircraft equipment and mobility bins are best suited to be located at or near a flightline entry control point.
- *Vehicle Operations Administration and Maintenance Shop*
- *Command Post* – an adequate operational, administrative, and training office space with the ability to discuss up to and including Top Secret, and perform daily and contingency C2 duties.
- *Maintenance Hangar*
- *Corrosion Control/Wash Rack Facility*
- *Fuel System Maintenance Hangar*
- *Parking Ramp for a minimum of eight KC-46A parking spots*
- *Aircraft General Purpose Shops*
- *Maintenance Training Facility*
- *Aerospace Ground Equipment (AGE) Shop*
- *Supply Warehousing*
- *Aerial Port Cargo Facility/Processing yard*

#### 2.1.2.3 Personnel Changes

The KC-46A would provide substantial expanded capabilities with only minor overall changes in military personnel; however, the mission would require basing sufficient and appropriate personnel to operate and maintain the Wing and to provide necessary support services. In addition, there would be an active duty associate unit based with the selected MOB 2 alternative installation. The number of personnel would vary by installation and is detailed further in each respective installation Sections 2.3.1 through 2.3.5.

#### 2.1.2.4 KC-46A Operations

Under the Proposed Action, the 12 PAA KC-46A aircraft would fly 670 hours per aircraft, per year, for a total of 8,040 hours annually. Because this is a new aircraft flying with a combination of ANG and associate active duty personnel, a uniform distribution of flying hours was assumed for each alternative. This is considered a conservative estimate and any deviation from this would likely be fewer hours flown. Thus, with an average sortie duration (ASD) of 4.0 hours, the KC-46A aircraft would fly 2,010 sorties annually. The 2,010 annual sorties would be flown at a combination of the unit's home-station as well as off-station airfields, where they are able to train in a different setting than their home-station. As discussed in Section 2.3, each of the five alternative installations currently fly a different number of airfield operations per sortie, as well as a different percent of home-station/off-station operations. In developing the analysis for each installation, the

installations' unique ratio of airfield operations was assumed to remain the same into the future, as were the percent of home-station/off-station operations. This resulted in a range of home-station airfield operations across the five action alternatives. Further, it is recognized that there is a recent trend toward an increasing use of flight simulators, which can reduce the number of hours flown. However, without a clear definition in the use of the simulator as opposed to actual airfield operations, the full 8,040 flying hour program has been analyzed for each action alternative. No changes are proposed to airfield departure/arrival patterns and tracks, flight profiles, and use of runways from those that are currently performed with the KC-135 at each MOB 2 location. Any existing noise abatement procedures would continue to be followed.

##### Common Operational Terms

**Sortie:** refers to a single military aircraft from take-off through final landing, and everything that might be conducted during that flying mission. A *sortie* will always include more than one *operation*.

**Operation:** this term can apply to both airfield and airspace activities. At an airfield, an operation consists of a single action such as a take-off, or a landing (i.e., two operations). For airspace and ranges, an operation consists of the use of one airspace unit (e.g., Military Operations Area [MOA], Air Refueling Track) by one aircraft. Each time a single aircraft flies into a different airspace unit, one operation is counted. During a single sortie, an aircraft could fly in several airspace units, and conduct a number of operations; therefore, the number of operations exceeds the number of sorties.

Under the Proposed Action, there would be some increases in the frequency of use and number of operations conducted in the airspace currently used by the KC-135, depending on the increase of sorties over the current baseline at each alternative installation (described in more detail in Sections 2.3.1 through 2.3.5). The KC-46A would use the same airspace currently used by the selected installation, with no new airspace required to support the mission. The types of airspace used would consist of published air refueling tracks, Anchors, Warning Areas, and Military Operations Areas (MOAs). These are found in the Department of Defense (DoD) AP/1B, Flight Information Publication, and Area Planning documents. All air refueling is accomplished above 10,000 feet mean sea level (MSL), although some MOAs are approved for lower altitude flight for training not involving air refueling. While a large percentage of air refueling occurs close to the home-station airfield, KC-135 aircraft refuel in other refueling tracks and Warning Areas located throughout the U.S. Under the Proposed Action, the KC-46A would use the airspace in the same manner as the KC-135 aircraft. It is anticipated that the KC-46A would operate in existing airspace and conduct flight operations similar to the existing KC-135 aircraft; therefore, detailed analysis of airspace will not be conducted in this EIS.

#### **Air Refueling Airspace Terms**

**Air refueling tracks:** Published linear routes identified on air navigation charts that define the flight path used by aircraft when refueling other aircraft. For fixed wing aircraft, this generally occurs above 10,000 feet MSL.

**Anchors:** Air refueling tracks that go in a race-track shape (i.e., loop).

**Warning Areas:** A warning area is airspace of defined dimensions, extending from 3 nautical miles outward from the coast of the United States, containing activity that may be hazardous to non-participating aircraft. The purpose of such areas is to warn non-participating pilots of the potential danger. A warning area may be located over domestic or international waters or both. The airspace is designated with a “W” followed by a number (e.g., W-237).

**Military Operations Area (MOA):** Airspace below 18,000 feet mean sea level (MSL) established to separate military activities from Instrument Flight Rule (IFR) traffic and to identify where these activities are conducted for the benefit of pilots using Visual Flight Rule (VFR).

## **2.2 NARROWING PROCESS FOR ALTERNATIVE BASES**

As previously described, the NGB is programmed to beddown one squadron of 12 PAA KC-46A aircraft at one of five alternative locations. Identification and analysis of alternatives is one of the core elements of the environmental process under NEPA and the USAF’s implementing regulations. The NGB may expressly eliminate alternatives from detailed analysis based on reasonable selection standards (32 CFR 989.8(c)). Based on extensive analysis by the USAF operations community, a siting study was conducted to determine the specific requirements for beddown of the KC-46A aircraft and to identify potential military installations where this beddown could occur. Following this study, the Secretary of the Air Force and the Chief of Staff of the Air Force approved selection criteria for the KC-46A beddown.

In general, the USAF uses the Strategic Basing process outlined in AFI 10-503 (2010) to select locations to beddown USAF missions. The process begins by identifying all the installations that could reasonably support a given mission. This enterprise of installations is then evaluated using objective criteria to screen the top candidate installations. Major Command-led site surveys are then conducted at each alternative location to determine if the installation could reasonably support the mission in question. The Strategic Basing Executive Steering Group oversees the process and reports findings directly to the Secretary of the Air Force and Chief of Staff of the Air Force. This process was mandated by the Secretary of the Air Force to ensure basing decisions were made using a deliberate, standardized, and repeatable process. The KC-46A basing decision followed this general basing process.

In September 2011, Air Mobility Command (AMC) presented to the Secretary of the Air Force the Lead Command Intent for the KC-46A. This Lead Command Intent described the proposed basing action tenets, force structure mix, basing timelines, other critical information, and will ultimately be used to shape and inform decisions made throughout the USAF Strategic Basing Process. The following planning conventions were derived from the Lead Command Intent:

1. Identify the number of KC-46A aircraft scheduled to be delivered between 2014 and 2018. This time period corresponded to the DoD Future Years Defense Program, which is the program and financial plan approved by the Secretary of Defense, and provides a basis for USAF planning. Planning beyond this time period is speculative due to the uncertainty of funding availability.
2. Identify the number of KC-46A aircraft to be allocated to operations based on then-current national strategic considerations.
3. Determine the number of bases capable of supporting one squadron of up to 12 PAA. PAA are those aircraft assigned to meet the primary aircraft authorization and reflect the number of aircraft flown by a unit in performance of its mission.
4. Recognize additional factors of Plans and Guidance and Global Positioning, which include strategic considerations but do not provide meaningful distinction among bases for USAF training within the U.S. and its territories. An additional Logistics Supportability factor equates to Boeing's support capacity set forth in its contract with the USAF. This factor does not distinguish among bases and is not included in the identification of reasonable MOB 2 beddown alternatives.

Consideration of the planning conventions above led to an initial screening of all ANG installations against the following standards for the MOB 2: 1) A runway of at least 7,000 feet in length, 2) the presence of an ANG Wing on the installation, and 3) the installation had to be located in the continental United States (CONUS). The initial screening yielded a defined enterprise of 83 candidate installations to be evaluated for the MOB 2 beddown. In 2012, AMC presented objective screening criteria to the Strategic Basing Executive Steering Group to be used in the identification of bases for the beddown of the KC-46A. The approved criteria were

used to screen the enterprise of 83 candidate installations to identify those installations' capacity to successfully support the MOB 2 mission. The objective criteria included mission, capacity, environmental considerations, and cost and are described in more detail below:

*Ability to meet the mission requirements.* Under this criterion, the candidate location must be within reasonable proximity to refueling receiver demand, airfield and airspace availability, fuel system capabilities, and must have the potential to establish an association with an active duty unit.

*Capacity.* The candidate location must have hangar capacity; runway length and weight bearing capacity; ramp space; base operation support capacity; squadron operations facilities with aircraft maintenance units; aircrew, maintenance, and fuselage training capabilities; and the necessary communications infrastructure.

*Environmental Constraints.* The candidate location must be able to demonstrate conformity with the respective State Implementation Plan (SIP), meet the local community's adoption of zoning or other land use controls to reduce encroachment and preserve the base's flying operations, waivers or absence of incompatible development in the clear zone (CZ) and/or accident potential zone (APZ), and have an absence or limited amount of incompatible development within noise contours above 65-decibel (dB) Day-Night Average Sound Level (DNL).

*Cost.* Given budgetary constraints, it was important for the USAF to select candidate bases that have a favorable area construction factor based on DoD Facilities Pricing Guide, dated June 2007 (DoD 2007), as updated by the June 2009 draft Office of the Secretary of Defense Pricing Guide (DoD 2009a).

The Secretary of the Air Force considered the objective screening results as well as qualitative operational factors in determining the alternative installations for the KC-46A MOB 2 mission. These military judgment factors included:

- Plans and Guidance
- Global and Regional Coverage
- Combatant Commander Support
- Total Force
- Beddown Timing
- Force Structure
- Training Requirements and Efficiencies
- Logistic Supportability
- Resources/Budgeting



The Strategic Basing Process described above resulted in the identification of five alternative bases for consideration.

- Forbes ANGS, Kansas
- JB MDL, New Jersey
- Pease ANGS, New Hampshire
- Pittsburgh ANGS, Pennsylvania
- Rickenbacker ANGS, Ohio

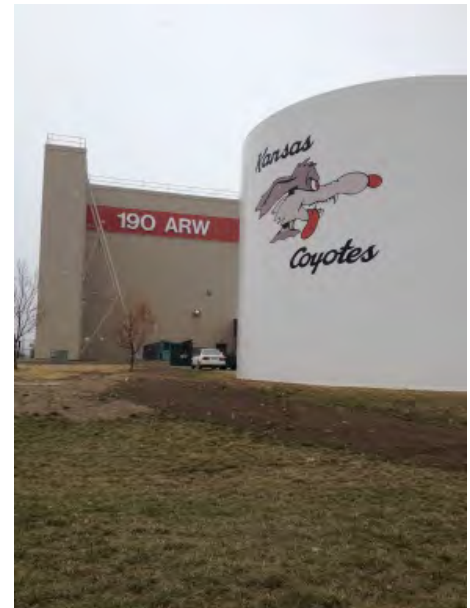
## **2.3 ACTION ALTERNATIVES CARRIED FORWARD**

This section describes the specific requirements of the beddown of one squadron of 12 KC-46A aircraft at each of the five alternative installations.

### **2.3.1 Alternative #1 – Forbes Air National Guard Station**

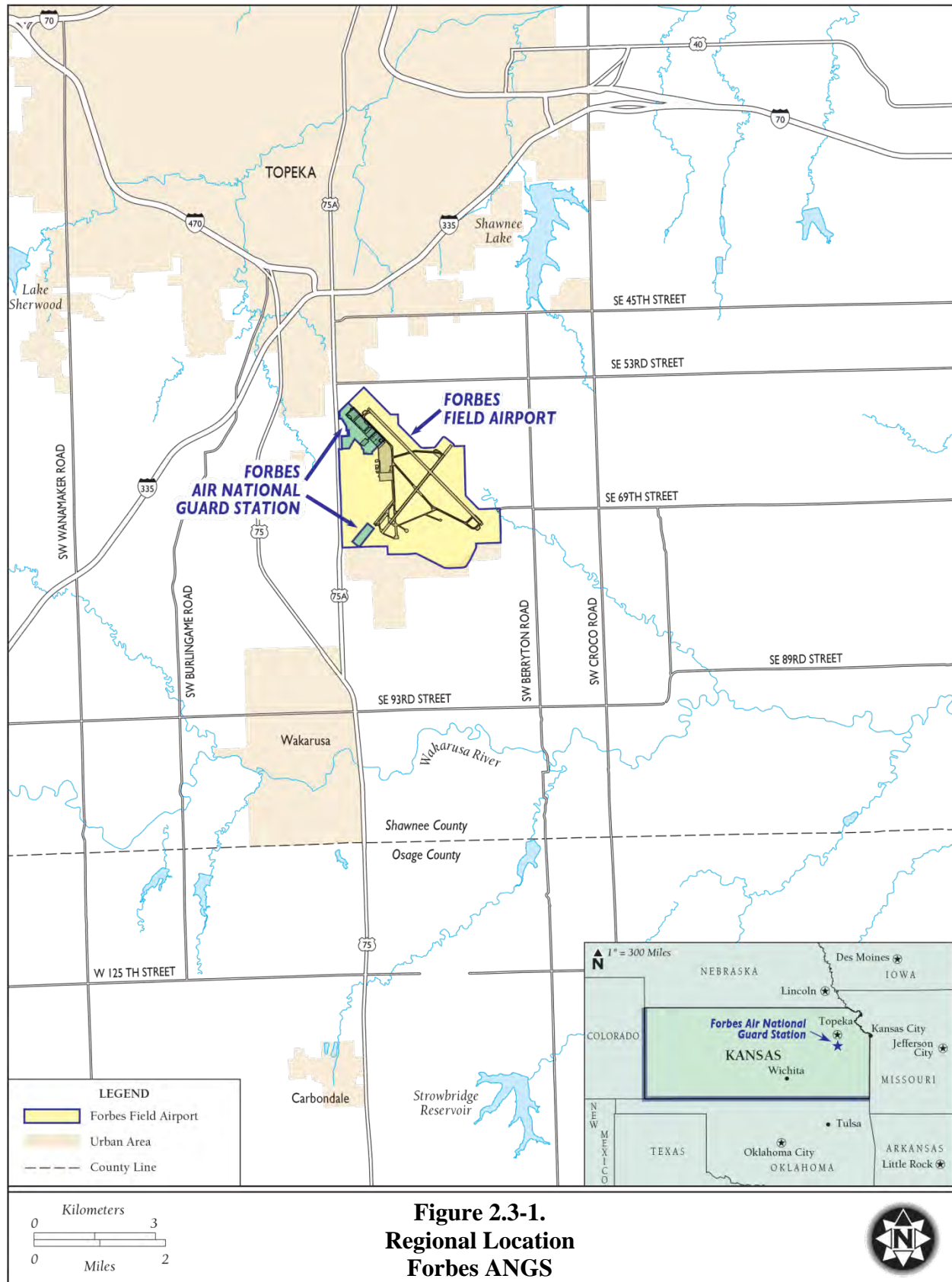
#### **2.3.1.1 Background**

Forbes ANGS, home of the 190<sup>th</sup> Air Refueling Wing (190 ARW) of the Kansas Air National Guard (KS ANG), is located approximately 5 miles south of Topeka in Shawnee County, Kansas (Figure 2.3-1). The 190 ARW base is situated on the northwest side of Forbes Field Airport, a municipal airport owned and operated by Metropolitan Topeka Airport Authority (MTAA). The 190 ARW holds a lease with the Forbes Field Airport for the installation property with a termination date of 2057. The installation occupies approximately 216 acres.



#### **2.3.1.2 Mission**

The 190 ARW of the KS ANG is a tenant at Forbes Field Airport in Topeka, Kansas. The 190 ARW is tasked with providing air-to-air refueling and airlift capabilities for DoD assets worldwide. The 190 ARW also supports state emergency missions. The 190 ARW currently flies and maintains 12 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 190 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.



## 2.3.1.3 Aircraft Conversion

Under Alternative #1, the 190 ARW would convert from 12 KC-135 PAA and no KC-135 Backup Aerospace Vehicle Inventory (BAI) to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Forbes ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.

## 2.3.1.4 Airfield Operations

Forbes Field Airport has two runways; Runway 13/31 is 12,802 feet long and 200 feet wide and Runway 03/21 is 7,001 feet long and 150 feet wide (AirNav 2013a).

The 190 ARW currently flies 1,478 sorties annually. According to the unit's scheduling data and airport traffic counts, 946 of these sorties were flown from Forbes Field Airport, or 64 percent of the total annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield operational data collected for 2012 indicates that the 190 ARW accounted for 10,452 airfield operations, with an average of 11 airfield operations per sortie (Table 2.3-1).

**Table 2.3-1. Current 190 ARW KC-135 Operations at Forbes Field Airport**

Aircraft	DEPARTURES		ARRIVALS		TOTAL		Grand Total <sup>1</sup>
	Day	Night <sup>1</sup>	Day	Night <sup>1</sup>	Day	Night <sup>1</sup>	
KC-135	4,541	685	4,390	836	8,931	1,521	10,452

Notes: 1. Night –Between 10 p.m. and 7 a.m. for environmental night.

Source: FAA 2012a.

Following the aircraft beddown under Alternative #1, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties annually, 64 percent of which would be performed at the home-station (Forbes ANG). Thus, it is expected that up to 1,286 sorties would be flown at Forbes Field Airport annually under this alternative. This would be an increase of 36 percent over the 946 home-station sorties identified in 2012 (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Forbes ANG under this alternative). Based on 1,286 annual home-station sorties and an average of 11.32 operations per sortie, there would be 14,562 annual home-station operations, or an additional 4,110 airfield operations annually at Forbes Field Airport (Table 2.3-2). This would increase the average daily airfield operations from 40.2 to 56.0 (Table 2.3-3). There would be no changes expected to departure/arrival patterns and tracks, flight profiles, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.1.1, *Noise*).

**Table 2.3-2. Proposed 190 ARW KC-46A Operations at Forbes Field Airport**

<i>Aircraft</i>	<b>DEPARTURES</b>		<b>ARRIVALS</b>		<b>TOTAL<sup>1</sup></b>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	6,322	959	6,118	1,163	12,440	2,122	14,562

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-3. Changes to 190 ARW Airfield Operations with Proposed KC-46A Aircraft<sup>1</sup>**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
190 ARW	10,452 (40.2)	14,562 (56.0)	4,110 (39.3%)

Note: 1. Yearly operations for Forbes are based on a 5-day flying week, or 260 days/year.

### 2.3.1.5 Airspace Operations

The 190 ARW conducts air refueling for both training and contingency missions for receiver aircraft. Primary air refueling tracks used by the 190 ARW are described in Table 2.3-4. Under Alternative #1, there would be a change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and would use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the airspace for each sortie and the operational training conducted would not be expected to change in any of the airspace described.

**Table 2.3-4. Current and Proposed Local Air Refueling Airspace Used by the 190 ARW<sup>1</sup>**

<i>Airspace Unit Altitude Floor and Ceiling</i>	<i>Current Aircraft Proposed Aircraft</i>	<i>Minutes in Airspace for Each Sortie</i>	<i>Average KIAS<sup>2</sup></i>	ANNUAL SORTIE OPERATIONS	
				<i>Current</i>	<i>Proposed</i>
AR 116 12,000-FL220	KC-135 KC-46A	55	275	100	136
AR 330 FL190-FL220	KC-135 KC-46A	55	275	100	136
AR 406H FL 260-290	KC-135 KC-46A	55	275	100	136
AR 406L FL200-FL220	KC-135 KC-46A	55	275	100	136
AR 406H FL260-FL280	KC-135 KC-46A	55	275	100	136
AR 110 FL240-FL270	KC-135 KC-46A	55	275	100	136
112 FL240-FL310	KC-135 KC-46A	55	275	100	136
AR 105 FL190-FL330	KC-135 KC-46A	55	275	100	136
Eureka MOA R 5502 6,000 feet MSL UTBNI FL 180	KC-135 KC-46A	30	315	100	136
Bison MOA 1,000 feet MSL UTBNI FL180	KC-135 KC-46A	30	315	100	136
Truman MOA 5,000 feet MSL UTBNI FL180	KC-135 KC-46A	30	315	100	136
HOG HI MOA 6,000 feet MSL UTBNI FL180	KC- 135 KC-46A	30	315	100	136

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 190 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.

2. Annual sortie operations are the number of times air refueling track/MOA is scheduled to be used by unit. KIAS = knots indicated airspeed; FL = Flight Level; MOA = military operations area; UTBNI = up to, but not including; MSL = mean sea level.

## 2.3.1.6 Construction Required

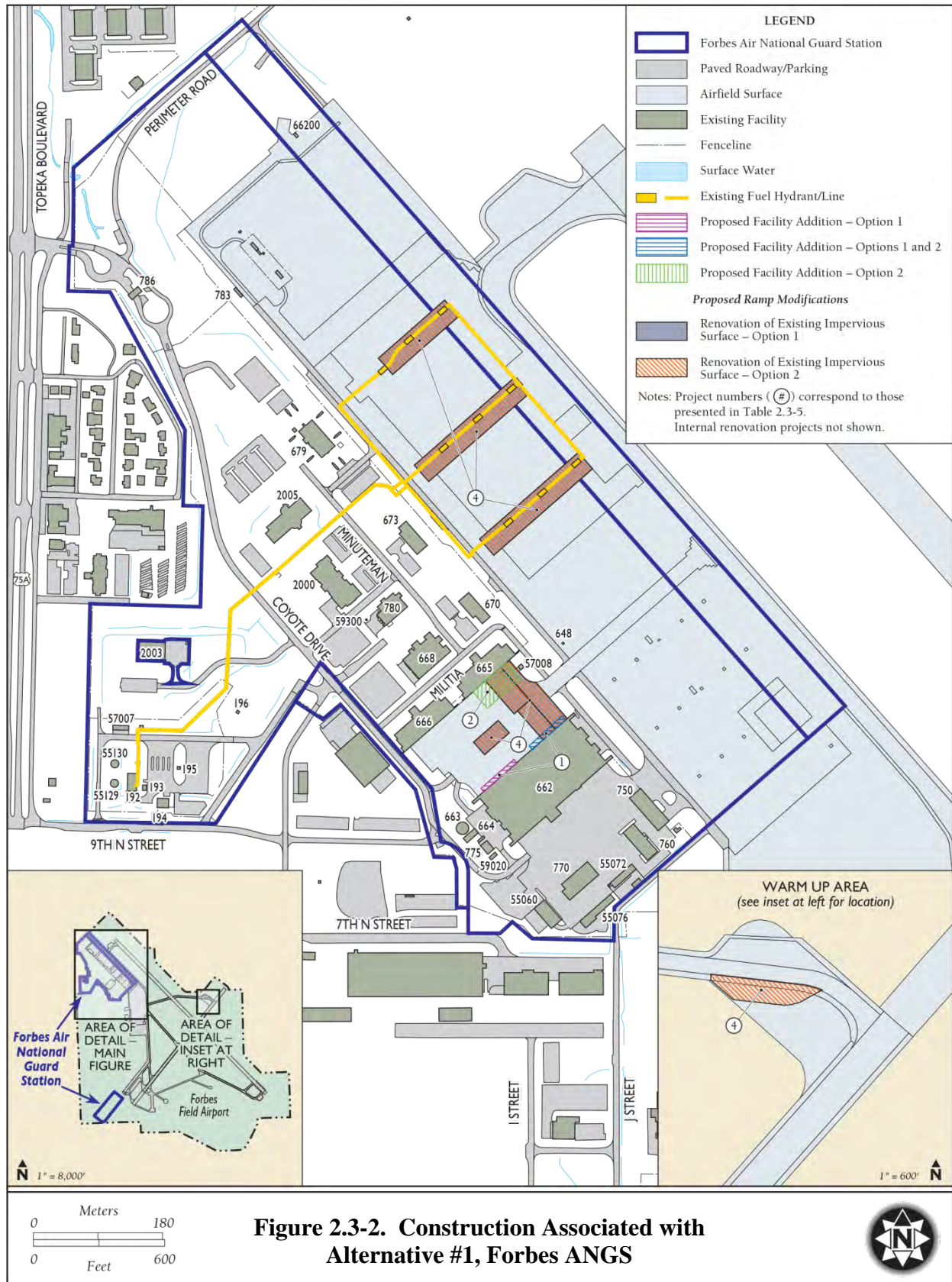
Under Alternative #1, 12 KC-46A PAA aircraft would be beddown at the 190 ARW installation at Forbes Field Airport, Kansas; the 190 ARW would also implement construction projects for that conversion (Table 2.3-5). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). Anti-Terrorism/Force Protection (AT/FP) requirements also would be incorporated. Proposed facilities would be sited approximately as shown in Figure 2.3-2. The precise layout and design of proposed facilities is in the early planning stages; therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

**Table 2.3-5. Proposed 190 ARW Construction Projects at Forbes Field Airport**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 (Option 1) – Addition to Hangar 662</b>			
This project would include the construction of two additions totaling 11,657 SF to Hangar 662 in order to provide an adequately sized hangar for the new KC-46A aircraft, Fuel Cell Hangar, Maintenance Hangar, Weapons System Trainer, and Boom Operator Trainer.	11,657	0	FY 2015
<b>Project #1 (Option 2) – Addition to Hangar 662</b>			
This project would involve a 5,847 SF addition to include a Maintenance Hangar, Weapons System Trainer, and Boom Operator Trainer, and Fuselage Trainer	5,847	0	FY 2015
<b>Project #2 (Option 1) – Internal Renovations to Hangar 665</b>			
Renovate the building interior to include a Fuselage Trainer.	0	0	FY 2015
<b>Project #2 (Option 2) – Addition to Hangar 665</b>			
This project would include a 18,985 SF addition to the Fuel Cell Hangar in order to provide an adequately sized hangar for the new KC-46A aircraft.	18,985	0	FY 2015
<b>Project #3 – Internal Renovations to Building 679</b>			
This project would reallocate space within the building for aircrew flight equipment. No modifications would be necessary for squadron operation, base operations, and command post.	0	0	FY 2015
<b>Project #4 (Option 1 and 2) – Pave Apron /Hydrants and Airfield Hold Ramp<sup>1</sup></b>			
This project would include the repair of pavement over the hydrant system and apron pavement between the hangars (184,820 SF).	184,820	0	FY 2015
<b>Project #4 (Option 2) – Pave Apron /Hydrants and Airfield Hold Ramp</b>			
This project would include repavement of approximately 42,687 SF of the airfield hold ramp off the second runway as well as the 184,820 SF addition described above.	227,507	0	FY 2015
<b>Total</b>	<b>258,149<sup>2</sup></b>	<b>0</b>	

Notes: 1. Two options are possible for the modifications to these projects. Only one of these options would be implemented.  
 2. The total construction footprint includes only the project option that has the greatest footprint of each of the options so as to represent the most conservative (highest amount) facility footprint given the multiple options possible.  
 SF=square feet; FY = fiscal year







Implementation of the KC-46A aircraft beddown would require the 190 ARW to ensure its installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. The Forbes ANG location was deemed to have an acceptable level of facilities to support this beddown and has facilities that currently meet the majority of the requirements identified in Section 2.1.2.2. However, some functional areas require modification. Two construction scenarios are under consideration. Under Option 1, two buildings would be renovated to accommodate the KC-46A maintenance, fuel cell, Weapons System Trainer, Boom Operator Trainer, and Fuselage Trainer. Minor adaptations would be made to a third building to accommodate aircrew flight equipment. This option assumes Sustainment, Restoration, and Modernization execution of pre-existing ramp and primary runway repairs. No changes to fuel hydrants and fuel lines would be required on the parking apron under this option. Under Option 2, two buildings would be renovated: Hangar 662, the Maintenance Hangar, would be modified to house the Maintenance Hangar, Weapons System Trainer, Boom Operator Trainer, and the Fuselage Trainer. Hangar 665, the Fuel Cell Hangar, would be modified to house the Fuel Cell Hangar. Concrete pavements directly over the existing hydrant systems would be repaired and the ramp would be re-striped. Pavement would be added to the airfield hold ramp off the second runway. The hydrant system would be maintained in its current state.

The projects described would incorporate Leadership in Energy and Environmental Design (LEED) and sustainable development concepts. This would achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be offset with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

#### *Addition to Hangar 662*

A minimum of one Fuel Cell Hangar is required to support the maintenance and operations of KC-46A. Additionally, a minimum of one Maintenance Hangar is required to support the maintenance and operations of KC-46A. Hangars provide an environmentally controlled area to perform maintenance on vital components of the aircraft system. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135, thus requiring slightly larger hangars. Hangar 662 would be modified to meet KC-46A requirements. One of two options could occur



*South Side of Hangar 662*

to satisfy these requirements. Option 1 would house the maintenance shops and safety systems required to perform fuel systems maintenance including pressure checks and inspections. Aircraft hangar space for on-aircraft open fuel cell maintenance would be provided. Interior modifications also would be made to house the KC-46A Weapons System Trainer and Boom Operator Trainer. Option 1 would include the construction of two additions totaling 11,657 square feet (SF). Option 2 would provide space for a Maintenance Hangar, Weapons System Trainer, Boom Operator Trainer, and the Fuselage Trainer. Option 2 would include the construction of a 5,847 SF addition.

#### *Modify Hangar 665*

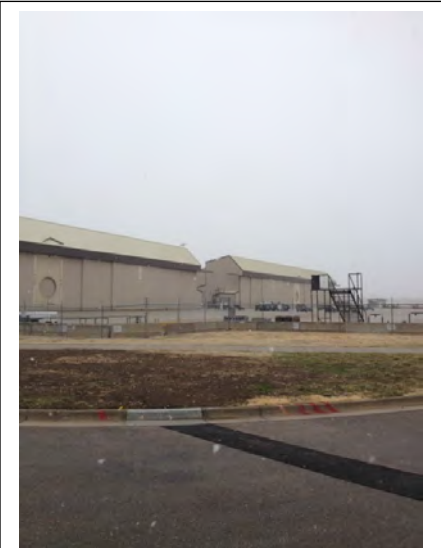
Space would be required for housing the various KC-46A simulators and maintenance functions. One of two options could occur to satisfy this requirement. Option 1 includes internal renovations to Hangar 665 to house the KC-46A Fuselage Trainer. Option 2 includes internal renovations and the construction of an 18,985 SF addition to Hangar 665 to accommodate aircraft fuel cell maintenance.

#### *Modify Building 679*

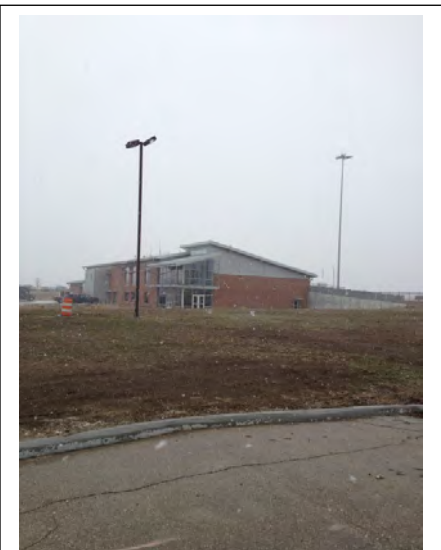
Building 679 was recently renovated; however, areas within the building would need minor interior modifications to house Aircrew Flight Equipment.

#### *Pave Aprons/Hydrant Areas and Airfield Hold Area*

The pavement conditions, such as thickness and strength of the hydrant and aircraft apron areas, are important factors in avoiding damage to the KC-46A and/or to the airfield pavement. One of two options could occur under Alternative #1 to satisfy the pavement requirements. Under both Option 1 and Option 2, this project would replace the concrete over the hydrant system and apron areas in the quad; the concrete in these areas currently is rated as in 'poor' condition. Under Option 2, a 42,687 SF area of the Airfield Hold Area would also be repaved. Under both options, this project would add pavement to the airfield hold ramp off the secondary runway.



*Hangar 665 (on the right)*



*Building 679*

### 2.3.1.7 Personnel Changes

The 190 ARW currently is authorized 1,242 personnel (Table 2.3-6). Under this alternative, the KC-46A mission would add an additional 194 military positions to the authorized manning requirement at Forbes ANG (approximately a 16 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-6.

**Table 2.3-6. Comparison of Currently Authorized and Proposed 190 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	78	78	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	297	310	13
Non-Dual Status (DoD civilians, Air Traffic Control)	28	28	0
<i>Subtotal</i>	<i>403</i>	<i>615</i>	<i>212</i>
<b>Part Time</b>			
Drill Status Guardsmen	839	821	-18
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,242</b>	<b>1,436</b>	<b>194</b>
<b>Total Personnel On Base</b>	<b>945</b>	<b>1,126</b>	<b>181</b>

*Note:* 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.  
2. Some personnel work off-site but are assigned to the unit.

## 2.3.2 Alternative #2 – Joint Base McGuire-Dix-Lakehurst

### 2.3.2.1 Background

JB MDL, home of the 108<sup>th</sup> Wing (108 WG) of the New Jersey Air National Guard (NJ ANG), is located in central New Jersey, spanning more than 20 miles with more than 42,000 contiguous acres (see Figure 2.3-3). The base is located 18 miles southeast of Trenton, 45 miles east of Philadelphia, 50 miles south of New York City, and 14 miles inland from the Atlantic Ocean. JB MDL is located in Ocean and Burlington Counties. The 108 WG installation is situated on the northwest side of McGuire Field within JB MDL. The 108 WG holds an indefinite lease with JB MDL for the installation property. Within Chapters 3 and 4, various resources discuss either JB MDL or McGuire Field, based on the region of influence (ROI) for each particular resource.



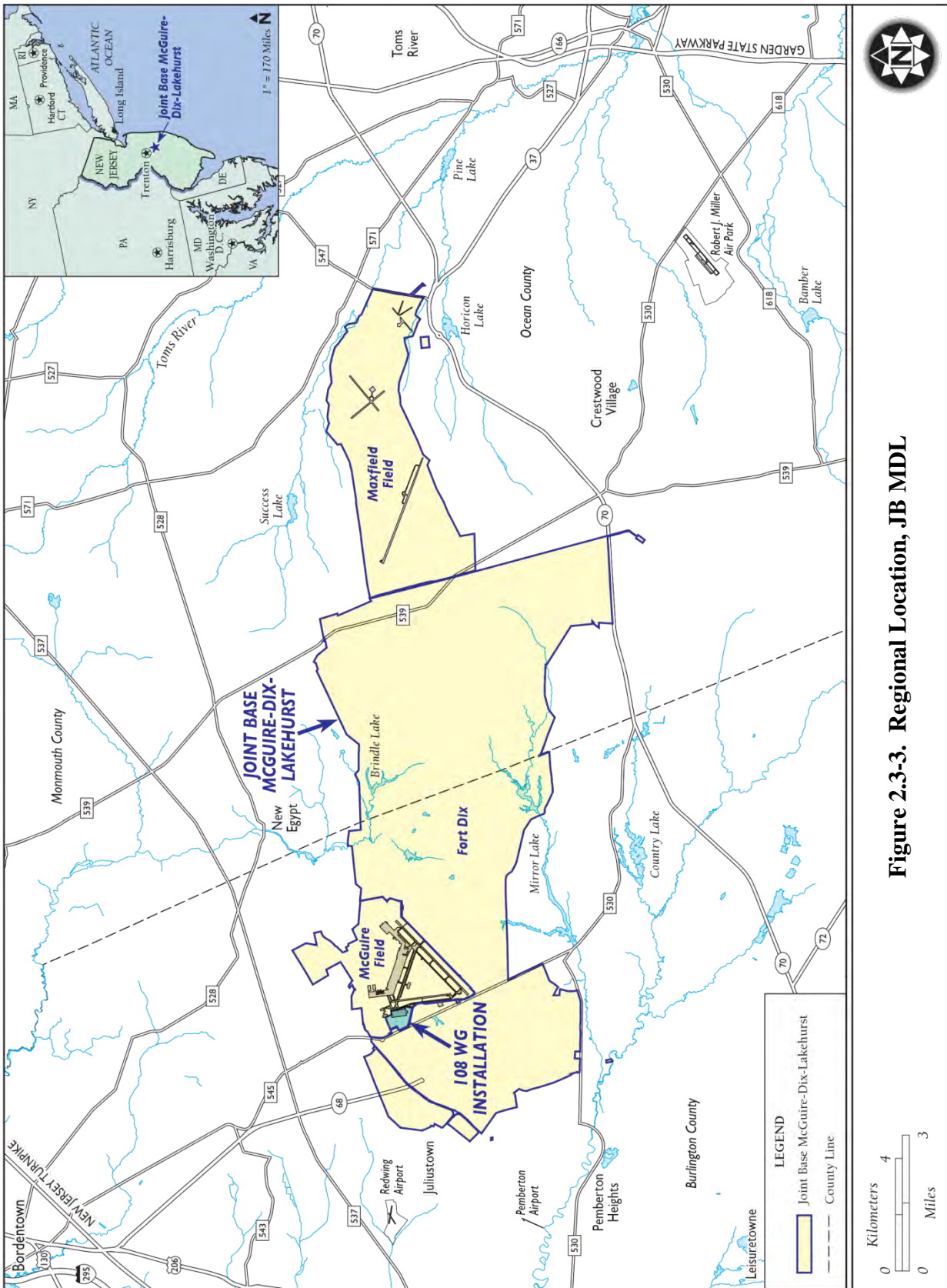


Figure 2.3-3. Regional Location, JB MDL

#### 2.3.2.2 Mission

The mission of the 108 WG is to provide support for federal, state, and community interests by providing timely worldwide air refueling, airlift, and support forces; protecting life and property; and preserving peace, order, and public safety. The 108 WG currently flies and maintains eight KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 108 WG include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

#### 2.3.2.3 Aircraft Conversion

Under Alternative #2, the 108 WG would convert from 8 KC-135 PAA and 1 KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at JB MDL, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.

#### 2.3.2.4 Airfield Operations

McGuire Field has two runways; Runway 06/24 is 10,014 feet long and 150 feet wide and Runway 18/36 is 150 feet wide and 7,126 feet long (JB MDL 2013a).

The 108 WG currently flies 1,112 sorties annually. According to the unit's scheduling data and Air Traffic Control counts, 834 of these sorties were flown from McGuire Field, or 75 percent of the total annual sorties flown (108 WG 2013a). The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield operational data collected from 2012 indicates that the 108 WG accounted for 8,340 annual operations with an average of 10 operations per sortie (Table 2.3-7) (108 WG 2013a).



**Table 2.3-7. Current 108 WG KC-135 Operations at McGuire Field**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-135	3,346	815	3,325	854	6,671	1,669	8,340

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

Source: 108 WG 2013a.

Following the aircraft beddown under Alternative #2, the KC-46A aircraft would fly a total of 8,040 hours, with an ASD of 4.0 hours. This would result in 2,010 annual sorties, 75 percent of which would be performed at the home-station (McGuire Field). Thus, it is expected that up to 1,508 sorties would be flown at McGuire Field. This would be an increase of 81 percent over the baseline 834 sorties identified in the McGuire Field Noise Study (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at McGuire Field under this alternative) (JB MDL 2013a). Based on 1,508 annual home-station sorties and an average of 11.68 operations per sortie, there would be 17,608 annual home-station operations, or an additional 9,268 airfield operations annually at McGuire Field (Table 2.3-8). This would increase the average daily airfield operations from 22.9 to 48.2 (Table 2.3-9). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.2.1, *Noise*).

**Table 2.3-8. Proposed 108 WG KC-46A Operations at McGuire Field**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night</i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	8,047	764	7,863	934	15,910	1,698	17,608

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-9. Changes to 108 WG Airfield Operations with Proposed KC-46A Aircraft**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
108 WG	8,340 (22.9)	17,608 (48.2)	9,268 (111.1%)

#### 2.3.2.5 Airspace Operations

The 108 WG conducts air refueling for both training and contingency missions for the receiver aircraft. Primary air refueling tracks used by the 108 WG are described in Table 2.3-10. Under Alternative #2, there would be an increase to the frequency of use of the associated airspace due to the proposed increase in the number of sorties conducted annually. The KC-46A will also

have a requirement for training as a receiver aircraft (on-loading fuel) and would use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). Currently, approximately 80 percent of the sorties flown from McGuire Field conduct air refueling training using the tracks found in Table 2.3-10. There would be an increase of 5,400 air refueling operations spread over the existing air refueling tracks currently used by the 108 WG. The increase would range from a maximum annual increase of 88 air refueling operations on the AR 777 track, to the smallest increase of 4 air refueling operations on AR 633. The refueling tracks identified in Table 2.3-10 are the most commonly used with a wide variety of other tracks being used less frequently.

**Table 2.3-10. Current and Proposed Local Air Refueling Airspace Used by the 108 WG<sup>1</sup>**

Airspace Unit Altitude <sup>2</sup> Floor and Ceiling	Current Aircraft Proposed Aircraft	Minutes in Airspace for Each Sortie	Average KIAS	ANNUAL SORTIE OPERATIONS	
				Current	Proposed
W107 <sup>2</sup> A-Unlimited <sup>3</sup>	KC-135 KC-46A	60	315	70	127
AR 777 FL210-FL280	KC-135 KC-46A	80	275	109	197
AR 220/218 FL190-FL220	KC-135 KC-46A	75	275	20	36
AR 631/609 FL200-FL260	KC-135 KC-46A	75	265	48	87
AR 636 FL200-FL290	KC-135 KC-46A	75	300	25	45
AR 207 SW/NE FL180-FL280	KC-135 KC-46A	90	265	17	31
AR 202 S/AN FL250-280	KC-135 KC-46A	75	265	15	27
AR 328 FL180-FL230	KC-135 KC-46A	90	275	16	29
AR 633 FL180-FL230	KC-135 KC-46A	70	275	5	9

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 108 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.

2. W-Warning Area Floor is the surface but no refuelings occur below 10,000 feet MSL.

3. FL Altitude is Mean Sea Level.

KIAS = knots indicated airspeed; FL = Flight Level

Source: 108 WG 2013b.

#### 2.3.2.6 Construction Required

Under Alternative #2, 12 KC-46A PAA aircraft would be beddown at the 108 WG installation at JB MDL; the 108 WG would also implement minor construction projects for that conversion (Table 2.3-11). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements would also be addressed to the extent practicable. Proposed facilities would be sited approximately as shown in Figure 2.3-4. The precise layout and design of proposed facilities is in the early planning stages, and therefore, exact locations and layouts are not finalized. Should

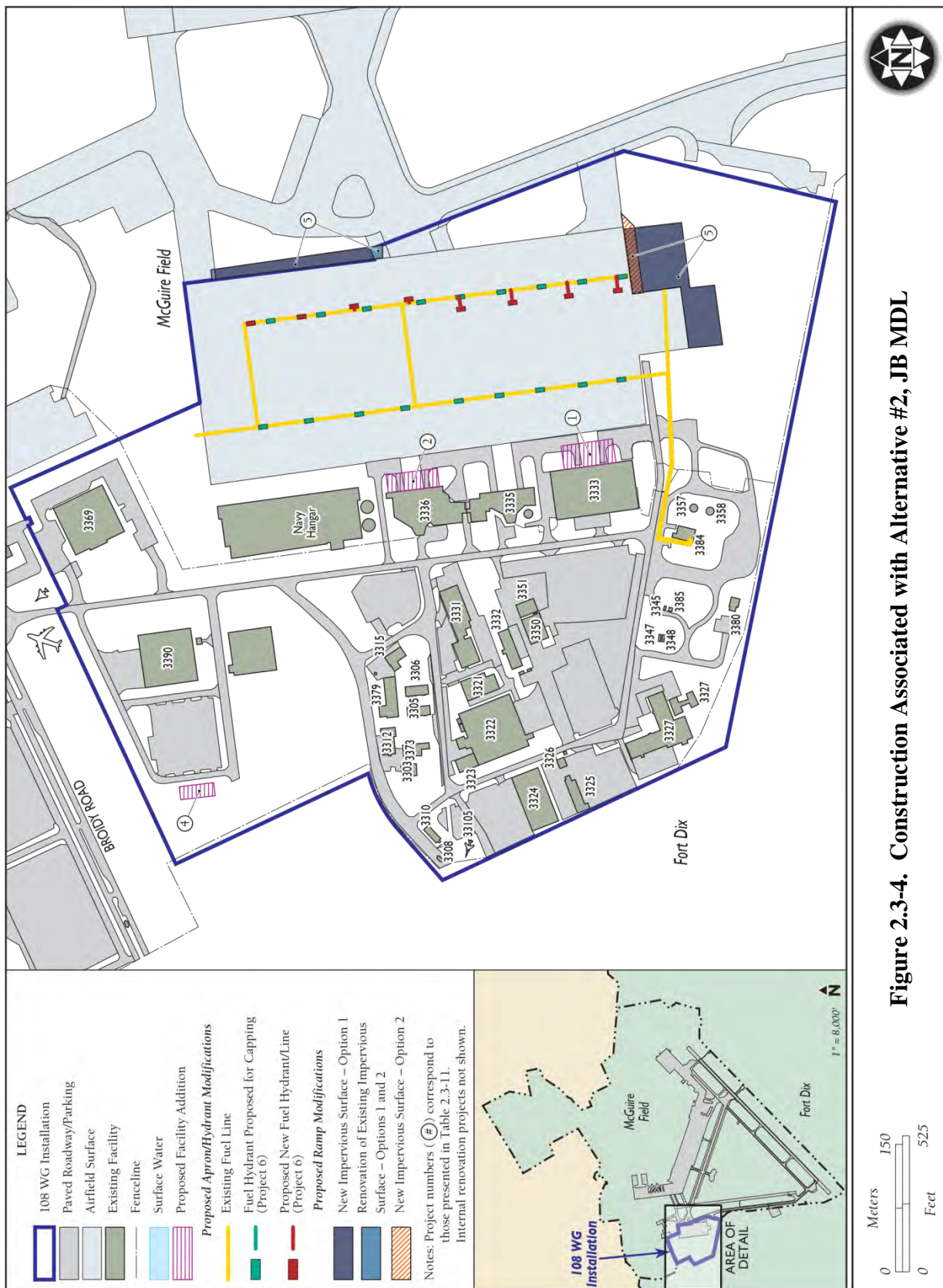


locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

**Table 2.3-11. Proposed 108 WG Construction Projects at McGuire Field**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 – Addition to Hangar 3333</b>			
This project would involve the addition of a 17,892 SF addition to the existing Maintenance Hangar 3333 to provide an adequately sized hangar for the new KC-46A aircraft.	17,892	4,728	FY 2015
<b>Project #2 – Addition to Hangar 3336</b>			
This project would involve the addition of an 18,206 SF addition to the existing Fuel Cell Hangar 3336 to provide an adequately sized hangar for the new KC-46A aircraft.	18,206	5,137	FY 2015
<b>Project #3 – Internal Renovations to Hangar 3322</b>			
This project would include internal renovations only to provide sufficient space to house the KC-46A Fuselage Trainer Simulator.	0	0	FY 2015
<b>Project #4 – New Simulator Building</b>			
This project would include the construction of a new 6,700 SF simulator building to house the Weapons System Trainer and the Boom Operator Trainer.	6,700	6,700	FY 2015
<b>Project #5 (Option 1) – Modifications to Existing Parking Ramp and Taxiway<sup>1</sup></b>			
This project would include the addition of concrete and asphalt to the existing parking ramp and renovation of a small portion of the taxiway. The construction footprint for this project would total approximately 160,074 SF.	160,074	88,319	FY 2015
<b>Project #5 (Option 2) – Modifications to Existing Parking Ramp and Taxiway</b>			
This project would include the addition of 12,029 SF of concrete and asphalt to the existing parking ramp as well as renovation of approximately 2,062 SF of existing taxiway surfaces .	14,091	12,029	FY 2015
<b>Project #6 – New Hydrants and Fuel Lines and Demolition of Existing Hydrants</b>			
This project would include the addition of eight new fuel hydrants as well as new fuel lines to these hydrants. Approximately 1,137 SF of disturbance would occur as a result of the new hydrants and fuel lines.	1,137	0	FY 2015
<b>Total</b>	<b>204,009<sup>2</sup></b>	<b>104,884<sup>2</sup></b>	

Notes: 1. Two options are possible for the modifications to the existing parking ramp and taxiway. Only one of these options would be implemented.  
 2. The total construction footprint includes only the project option that has the greatest footprint of each of the options so as to represent the most conservative (highest amount) facility footprint given the multiple options possible.  
 SF = square foot; FY = fiscal year



Implementation of the KC-46A aircraft beddown would require the 108 WG to ensure their installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. Although the JB MDL location was deemed to have an acceptable level of facilities to support this beddown, and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2, there remain some functional areas that would require modification. Proposed construction includes: addition to Hangar 3333, addition to Hangar 3336, internal renovations of Hangar 3332, construction of a new simulator building, modification to existing ramp and taxiway, and addition and demolition of hydrants and fuel lines on the parking apron.

The projects described below would incorporate LEED and sustainable development concepts, so as to achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be rewarded with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

#### *Addition to Hangar 3333*

A minimum of one Maintenance Hangar is required to support the maintenance and operations of the KC-46A. Hangars provide an environmentally controlled area to perform maintenance. The hangar bays require enough space to use the support equipment such as stands and carts to perform maintenance functions. The hangars would house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 17,892 SF addition to Hangar 3333 would need to be added to accommodate the larger aircraft inside the maintenance hangar. Following the construction, there would be an increase of approximately 4,728 SF of impervious surface as a result of this project.



*Hangar 3333*

### *Addition to Hangar 3336*

A minimum of one Fuel Systems Maintenance Hangar is required to support the maintenance and operations of the KC-46A aircraft. The Fuel Systems Maintenance Hangar provides space for covered aircraft maintenance, shop and administrative functions, and contains utilities and safety systems required to perform fuel systems maintenance to include pressure checks and inspections. Aircraft hangar space is required for on-aircraft open fuel cell maintenance. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, an 18,206 SF addition to Hangar 3336 would be required to accommodate the larger aircraft inside the maintenance hangar. Following the construction, there would be an increase of approximately 5,137 SF of impervious surface as a result of this project.



*Hangar 3336*

### *Internal Renovations to Hangar 3322*

Internal renovations to Hangar 3322 would be implemented to house the KC-46A Fuselage Trainer Simulator.

### *New Simulator Building*

A new 6,700 SF building would be constructed west of Building 3390 to house the Weapons System Trainer and the Boom Operator Trainer. Following the construction, there would be an increase of approximately 6,700 SF of impervious surface as a result of this project.



*Proposed Area for the New Simulator Building*



### *Modifications to Existing Parking Ramp*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. Additional concrete would be added to the parking ramp and taxiway at JB MDL in order to increase the size of the parking ramp to accommodate the larger KC-46A aircraft. Two options are possible for the modifications to the existing parking ramp. Only one of these options would be implemented.



*Proposed Area for Parking Ramp Modifications*

1. The first option is to add additional pavement to the northeast side of the apron to increase width for taxiing; add pavement to the southeast side for taxiing; and add pavement to the south side for engine run-ups. This would allow for a 50-foot wing clearance for taxiing. In addition, this option would include the renovation of approximately 2,062 SF of the existing taxiway. This project would include a total of 160,074 SF of new pavement. Following the construction, there would be an increase of approximately 88,319 SF of impervious surface as a result of this project.
2. The second option would include a 12,029 SF addition of a small pavement area on the southeast side of the apron as well as the renovation of approximately 2,062 SF of the existing taxiway. Under this option, a waiver would be required since the wing tip clearance would be reduced to only 25 feet instead of 50 feet. The total SF of disturbance would be approximately 14,091 SF. Following the construction, there would be an increase of approximately 12,029 SF of impervious surface as a result of this project.

### *New Hydrants and Fuel Lines and Demolition of Existing Hydrants*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. To fuel an aircraft, one R-12 fueling truck is needed instead of several. Under Alternative #2, eight new fuel hydrants would be added to the existing parking ramp as well as new fuel lines to one of these hydrants. Approximately 1,137 SF of disturbance would occur as a result of the new hydrants and fuel lines.

### 2.3.2.7 Personnel Changes

The 108 WG currently is authorized 1,329 personnel. Under Alternative #2, the KC-46A mission would add an additional 287 military positions to the authorized manning requirement (approximately a 22 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-12.

**Table 2.3-12. Comparison of Currently Authorized and Proposed 108 WG Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	138	138	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	278	310	32
Non-Dual Status (DoD civilians, Air Traffic Control)	0	0	0
<i>Subtotal</i>	<i>416</i>	<i>647</i>	<i>231</i>
<b>Part Time</b>			
Drill Status Guardsmen	913	969	56
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,329</b>	<b>1,616</b>	<b>287</b>
<b>Total Personnel On Base</b>	<b>1,051</b>	<b>1,306</b>	<b>255</b>

*Note:* 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

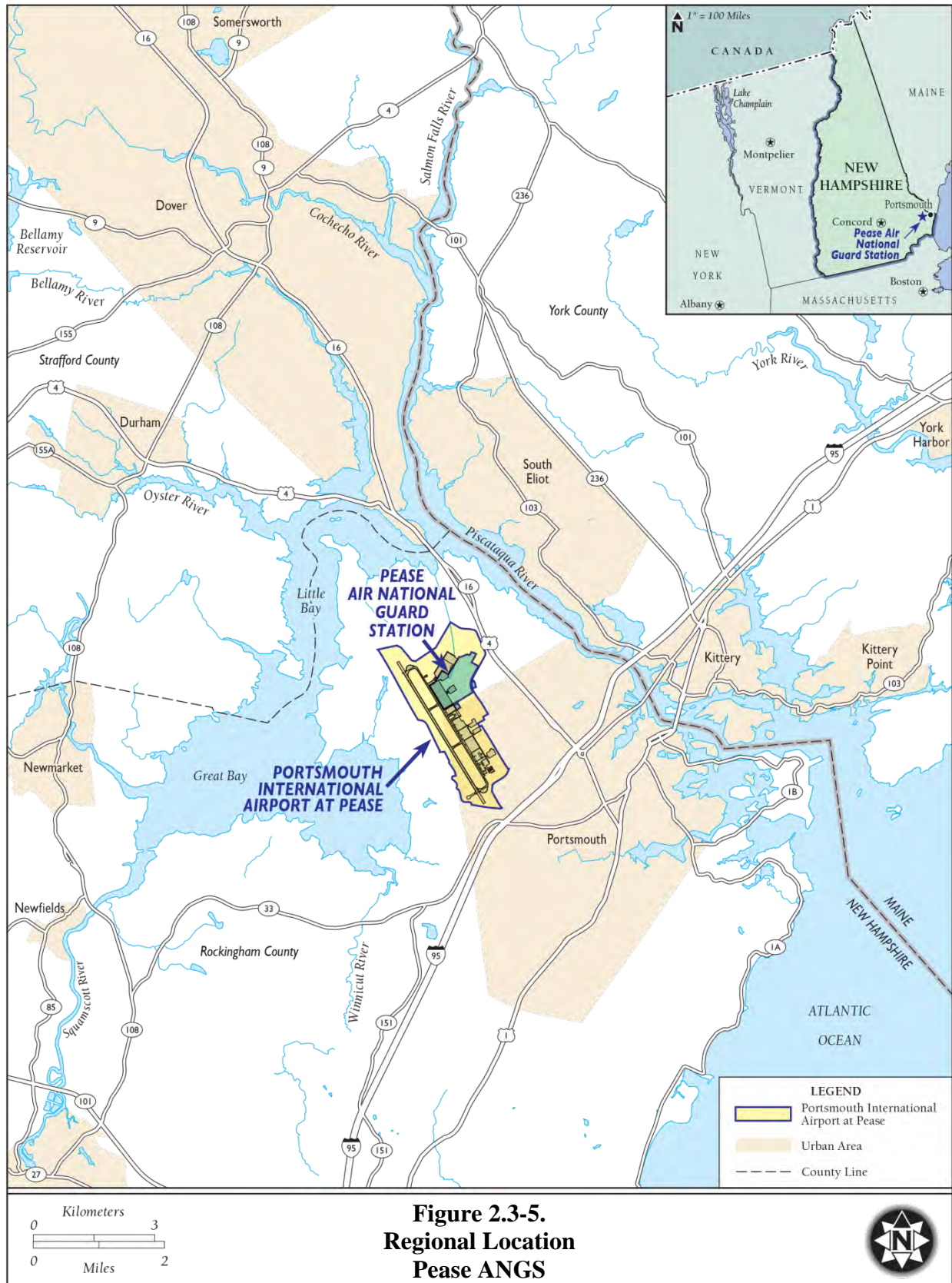
2. Some personnel work off-site but are assigned to the unit.

## 2.3.3 Alternative #3 – Pease Air National Guard Station

### 2.3.3.1 Background

Pease ANG, home of the 157<sup>th</sup> Air Refueling Wing (157 ARW) of the New Hampshire Air National Guard (NH ANG), is located in Portsmouth and Newington, New Hampshire, approximately 55 miles north of Boston, Massachusetts (Figure 2.3-5). The 157 ARW base is situated on the northeast side of the Portsmouth International Airport (IAP) at Pease, which is owned and operated by Pease Development Authority (PDA). The 157 ARW holds an indefinite lease for the installation property. The 157 ARW installation occupies approximately 220 acres.







### 2.3.3.2 Mission

The primary mission of the 157 ARW is to provide worldwide support with the KC-135 air refueling tanker aircraft and to staff, equip, and train combat flying and combat support units to augment the USAF. In addition, the 157 ARW provides both homeland defense and assistance with state emergencies and natural disasters to protect life and property, and to preserve peace, order, and public safety. The major support operations performed at the installation include aircraft fueling, aircraft deicing, aircraft maintenance, AGE maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. Pease ANG also hosts the 64<sup>th</sup> Air Refueling Squadron (64 ARS), which stood up at Pease on October 2, 2009. The 64 ARS is administratively assigned to McConnell AFB's 22<sup>d</sup> Operations Group but is located with, and gets operational direction from, its host unit, the 157 ARW at Pease. This partnership is part of the USAF's TFI effort to increase efficiency by combining active-duty, Guard, and Reserve resources. Aircrew, maintenance, and support personnel assigned to the 64 ARS work alongside Guardsmen flying and maintaining the 157 ARW's aircraft to accomplish the Wing's refueling missions. As of February 2013, 129 active associate personnel were authorized at Pease. It is the first active-duty USAF unit to return to the ANG Base since 1991, when Pease AFB, then an active-duty installation, closed.

Additionally, the installation has a Medical Training Group and operational command of the 260<sup>th</sup> Air Traffic Control Squadron, which operates the air traffic control tower for the airport (157 ARW 2008a).

### 2.3.3.3 Aircraft Conversion

Under Alternative #3, the 157 ARW would convert from 8 PAA KC-135 and 1 KC-135 BAI aircraft to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Pease ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.

### 2.3.3.4 Airfield Operations

Portsmouth IAP has one grooved concrete and asphalt runway, Runway 16/34, which is approximately 11,321 feet long and 150 feet wide (SkyVector 2013a).

The 157 ARW currently flies 1,382 sorties annually. According to the unit's scheduling data and airport traffic counts, 614 were flown from Portsmouth IAP, or 44 percent of the annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 157 ARW accounted for 6,140 annual operations with an average of 10.0 operations per sortie (Table 2.3-13).

**Table 2.3-13. Current 157 ARW Operations at Portsmouth IAP**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>1</sup></i>	<i>Day</i>	<i>Night<sup>1</sup></i>	<i>Day</i>	<i>Night<sup>1</sup></i>	
KC-135 <sup>2</sup>	2,939	131	2,939	131	5,878	262	6,140

Notes: 1. Night –Between 10 p.m. and 7 a.m. for environmental night.

2. Based on KC-135 data provided by 157 ARW/CC.

Source: 157 ARW 2013a.

Following the aircraft beddown under Alternative #3, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties, 44 percent of which would be performed at the home-station (Pease ANG). Thus, 884 sorties would be flown at Pease ANG annually under this alternative. This would be an increase of 44.0 percent over the baseline 614 annual sorties currently flown from Pease ANG (it is assumed the same percentage of sorties would be flown away from Pease ANG under this alternative as under the current baseline conditions). Based on 884 annual home-station sorties and an average of 10.0 operations per sortie, there would be 8,840 annual home-station operations, or an additional 2,700 airfield operations annually at Portsmouth IAP (Table 2.3-14). This would increase the average daily airfield operations from 16.8 to 24.2 (Table 2.3-15). There would be no changes expected to departure/arrival patterns and tracks, flight profiles, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.3.1, *Noise*).

**Table 2.3-14. Proposed 157 ARW KC-46A Operations at Portsmouth IAP**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	4,231	189	4,231	189	8,462	376	8,840

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-15. Changes to 157 ARW Airfield Operations with Proposed KC-46A Aircraft**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
157 ARW	6,140 (16.8)	8,840 (24.2)	2,700 (44.0%)

#### 2.3.3.5 Airspace Operations

The 157 ARW conducts air refueling for both training and contingency missions for receiver aircraft. Primary air refueling tracks used by the 157 ARW are described in Table 2.3-16. Under Alternative #3, there would be a slight change to the frequency of use of the airspace due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will use the existing air refueling tracks as a receiver in

addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the airspace for each sortie, and the operational training conducted would not be expected to change in any of the airspace described.

**Table 2.3-16. Current and Proposed Local Air Refueling Airspace Used by the 157 ARW<sup>1</sup>**

<i>Airspace Unit Altitude Floor and Ceiling</i>	<i>Current Aircraft Proposed Aircraft</i>	<i>Minutes in Airspace for Each Sortie</i>	<i>Average KIAS</i>	<i>ANNUAL SORTIE OPERATIONS</i>	
				<i>Current</i>	<i>Proposed</i>
AR 020 17,000 feet MSL–FL190	KC-135 KC-46A	60	275	154	222
AR 777 FL210-FL280	KC-135 KC-46A	60	275	165	238
AR 062 FL210-FL280	KC-135 KC-46A	60	275	78	112
AR 107 14,000 MSL – FL230	KC-135 KC-46A	60	275	56	81
AR 631 FL200-FL260	KC-135 KC-46A	60	275	198	285
W102 Above 17,000 MSL to FL600	KC-135 KC-46A	30	300	3	4
W105 SFC to FL500	KC-135 KC-46A	30	300	16	23
W107 Surface to Unlimited	KC-135 KC-46A	30	315	19	27
W122 FL190-FL220	KC-135 KC-46A	30	315	2	3
W386 Surface to Unlimited	KC-135 KC-46A	30	315	3	4
Kiwi MOA FL190-FL230	KC-135 KC-46A	30	300	14	20
Duke Surface to 8,000 MSL	KC-135 KC-46A	30	300	9	13
Falcon MOA FL200-FL260	KC-135 KC-46A	30	300	3	4
Yankee 1 <sup>2</sup> 9,000 feet MSL UTBNI FL180	KC-135 KC-46A	30	300	5	7

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 157 ARW in this airspace.

Additional aircraft flown by other units that use this airspace are not shown.

2. MOA Floor is 9,000 feet MSL but no refueling occurs below 10,000 feet MSL.

KIAS = knots indicated airspeed; MSL = mean sea level; FL = Flight Level; MOA = military operations area; UTBNI = up to, but not including.

Source: 157 ARW 2013a.

#### 2.3.3.6 Construction Required

Under Alternative #3, the 157 ARW would implement construction projects for the conversion to 12 KC-46A PAA (Table 2.3-17). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements also would be incorporated. Proposed facilities would be sited approximately as shown in Figure 2.3-6. The precise layout and design of proposed facilities is in the early planning stages; therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

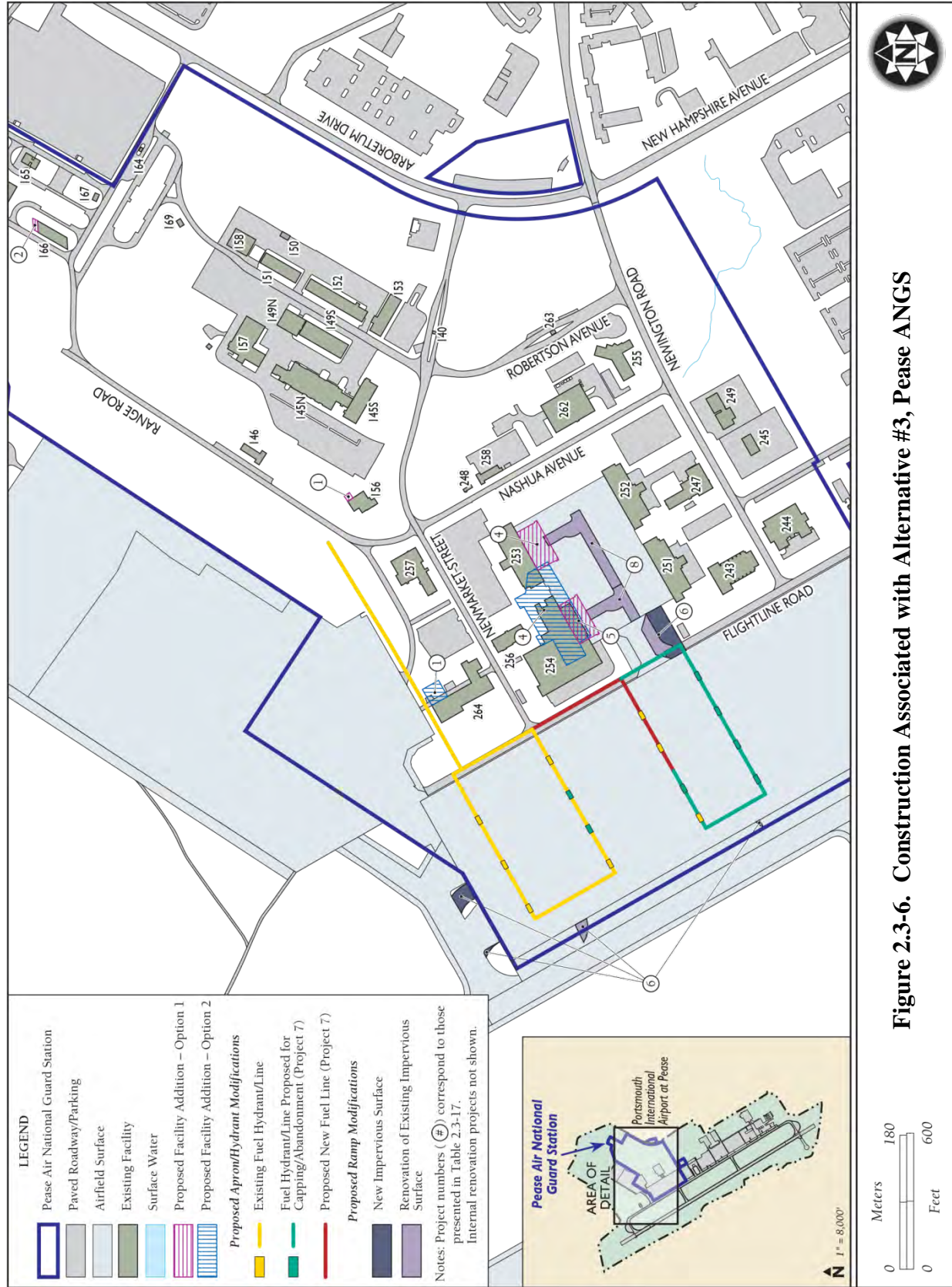
Implementation of the KC-46A aircraft beddown would require the 157 ARW to ensure its installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. The Pease ANG location was deemed to have an acceptable level of facilities to support this beddown and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2. However, some functional areas require modification. Proposed construction includes: renovation and additions to Buildings/Hangars 156, 264, 166, 251, 253, and 254; construction and upgrade of the taxiway; and demolition and installation of new fuel hydrants and fuel lines on the parking apron.

Construction projects would incorporate LEED and sustainable development concepts. This would achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of the project's life cycle. While implementation of LEED standards may result in primary facility costs that exceed DoD costing standards, the initial investment in higher acquisition cost would be offset with lower life cycle costs. LEED certified construction is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

**Table 2.3-17. Proposed 157 ARW Construction Projects at Portsmouth IAP**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 (Option 1) – Renovation/Addition to Building 156<sup>1</sup></b>			
Remove KC-135 Weapons System Trainer and reuse main bay for the KC-46A Weapons System Trainer; upgrade facilities to support storage in the simulator bays; and construct addition to the ground floor to house the Boom Operator Trainer.	750	750	FY 2015
<b>Project #1 (Option 2) – Renovation/Addition to Building 264<sup>1</sup></b>			
This project would construct an 11,600 SF addition to Building 264 to house the KC-46A Weapons System Trainer Bay, KC-46A Boom Operator Trainer Bay, and Computer Server Room.	11,600	11,600	FY 2015
<b>Project #2 - Addition to Building 166</b>			
Add refueler vehicle parking spaces and driveway.	1,100	1,100	FY 2015
<b>Project #3 – Internal Renovations to Hangar 251</b>			
Renovate mezzanines for administrative space and alter hangar bay for deployment processing/fuselage trainer.	0	0	FY 2015
<b>Project #4 (Option 1)– Addition/Alteration to Hangar 253<sup>1</sup></b>			
Remove existing hangar door and construct hangar addition; reconfigure interior for Fuel Cell Hangar, storage and maintenance, and corrosion control shops.	18,985	0	FY 2015
<b>Project #4 (Option 2)– Demolition/Addition/Alteration to Hangar 253<sup>1</sup></b>			
Demolish building and rebuild double hangar with Hangar 254.	36,026	0	FY 2015
<b>Project #5–Demolition/Addition/Alteration to Hangar 254</b>			
Construct new tail addition and reconfigure interior for KC-46A.	18,530	0	FY 2015
<b>Project #6 – Alter Aircraft Taxiway</b>			
Construct a concrete taxiway (6,843 SF), an asphalt shoulder (4,074 SF), and upgrade concrete taxiway (828 SF).	11,745	10,917	FY 2015
<b>Project #7 – Demolition/Modify/Install Aprons and Hydrants</b>			
This project would reuse existing hydrants in the north and south loops; add interstitial monitoring and secondary containment; and relocate parking.	2,890	0	FY 2015
<b>Project #8 – Repave Quad Apron</b>			
Repave surfaces used to tow aircraft in and out of the hangar and fuel cell, but not the entire facility.	49,075	0	FY 2015
<b>Total</b>	<b>130,966</b>	<b>23,617</b>	

Notes: 1. Two options are possible for the modifications to these projects. Only one of these options would be implemented.  
2. The total construction footprint includes only the project option that has the greatest footprint of each of the options so as to represent the most conservative (highest amount) facility footprint given the multiple options possible.  
SF=square feet; FY = fiscal year





*Alteration or Addition to Building 156 for Weapons System Trainer and Boom Operator Trainer*

The KC-46A beddown would require the construction of a new KC-46A Weapons System Trainer and Boom Operator Trainer to train flight crews. One of two options could occur under Alternative #3 to satisfy this requirement. Option 1 would remove the KC-135 Weapons System Trainer in Building 156 and reuse the main bay for the KC-46A Weapons System Trainer. In addition, under Option 1, a 750 SF addition to Building 156 would be constructed to house the KC-46A Boom Operator Trainer. Option 2 would leave the KC-135 Weapons System Trainer in Building 156 and construct an 11,600 SF addition to the new Squadron Operations Building, Building 264 (currently under construction), to house the Weapons System Trainer, the KC-46A Boom Operator Trainer, and supporting Computer Server Room.

*Additions to Building 166 Refueler Parking Area*

Alteration of this facility is required to provide a facility large enough to house assigned R-11, R-12, and C-300 refueling vehicles. To accommodate refueling vehicles, covered parking spaces would be added, and a new driveway would be built (adjacent to Building 166). Following the construction, there would be an increase of approximately 1,100 SF of impervious surface as a result of this project.

*Internal Renovations to Hangar 251*

The Mezzanine within Hangar 251 would be renovated for KC-46A administrative space and the hangar bay would be altered to accommodate the Fuselage Trainer and Deployment Processing Center. In addition, the utilities for aircraft power and potable water would be upgraded.

*Addition to Hangar 253 and Hangar 254*

The hangar bays require enough space to use the support equipment such as stands and carts to perform KC-46A maintenance functions. The hangars would house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135, thus requiring slightly larger hangars. Hangar 254 and Hangar 253 require modifications to meet KC-46A requirements. One of two options could occur under Alternative #3 to satisfy these requirements.



Under Option 1, an 18,985 SF addition would be added to the hangar, while existing maintenance shops would be reused, and a 2-hour firewall would be added. A high-bay tail addition and door would be added to the south side of this hangar. Also, mid-bay areas for Wing Air Refueling Pod storage and maintenance with overhead cranes, and corrosion control would be built. Mezzanines would be renovated for administrative use. Under Option 2, both Hangar 253 and the hangar space in Hangar 254 would be demolished. A new 36,026 SF double hangar would be built incorporating the existing Hangar 253 shops in Hangar 254.

#### *Addition to Hangar 254*

The existing dormer would be demolished and a new 18,530 SF dormer would be added to the hangar to accommodate the KC-46A. The existing roofs would also be replaced. Excess space in the existing jet engine shop would be used to store aircraft support equipment. The existing maintenance shops would be reused.

#### *Alter Aircraft Taxiway*

Alteration of the existing taxiway would be required at Pease ANG to enable the KC-46A aircraft to access the maintenance hangars. The existing taxiway from the main apron to the hangar area is configured for towing of KC-135 aircraft to the existing hangars. Construction of tail additions combined with the larger dimensions of the KC-46A would not allow the existing taxiway to be reused as-is. In addition, the taxiways would need to be wide enough to support the turning radii of the KC-46A. Under Alternative #3, 828 SF of concrete taxiway would be upgraded, and 6,843 SF concrete taxiway and 4,074 SF asphalt shoulder would be constructed to the quad area to accommodate the aircraft. Following the construction, there would be an increase of approximately 10,917 SF of impervious surface as a result of this project.



*Hangar 253*



*Hangar 254*



*Taxiway Proposed for Modifications*

### *New Hydrants and Demolition of Existing Hydrants*

The beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. One of two options could occur under Alternative #3 to satisfy this requirement. Option 1 would reuse six of the seven existing hydrants in North Loop and would cap one hydrant under the proposed parking area. In the South Loop, interstitial monitoring and secondary containment would be added; only two hydrants would be used in this area. Under Option 2, the old piping would be demolished and new piping installed; valves and pits would be installed in Rows 4 and 5. Eight existing hydrant valve pits would be used. Approximately 2,890 SF of disturbance would occur as a result of the new hydrants and fuel lines.

### *Quad Apron*

This project would repave surfaces used to tow aircraft in and out of the hangar and fuel cell. The quad apron is currently degrading and is in need of renovations for KC-46A operations. Under Alternative #3, 49,075 SF of surface area used to tow aircraft in and out of the hangar and fuel cell would be repaved.

### 2.3.3.7 Personnel Changes

The 157 ARW currently is authorized 1,382 personnel (Table 2.3-18). Under Alternative #3, the KC-46A mission would add an additional 171 military positions to the authorized manning requirement (approximately a 12 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-18.

**Table 2.3-18. Comparison of Currently Authorized and Proposed 157 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	127	199	72
Active Guard and Reserve	120	120	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	283	326	43
Non-Dual Status (DoD civilians, Air Traffic Control)	9	9	0
<i>Subtotal</i>	<i>539</i>	<i>654</i>	<i>115</i>
<b>Part Time</b>			
Drill Status Guardsmen	843	899	56
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,382</b>	<b>1,553</b>	<b>171</b>
<b>Total Personnel On Base</b>	<b>1,099</b>	<b>1,227</b>	<b>128</b>

Note: 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

2. Some personnel work off-site but are assigned to the unit.

## **2.3.4 Alternative #4 – Pittsburgh Air National Guard Station**

### **2.3.4.1 Background**

Pittsburgh ANG, home of the 171<sup>st</sup> Air Refueling Wing (171 ARW) of the Pennsylvania Air National Guard (PA ANG), is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County (Figure 2.3-7). The 171 ARW installation is situated on the southeastern side of the Pittsburgh IAP, an international airport owned and operated by the Allegheny County Airport Authority (ACAA). The 171 ARW installation currently occupies approximately 179 acres in the southeastern corner of Pittsburgh IAP. The 171 ARW holds a lease with the Pittsburgh IAP with a termination date of 2050.

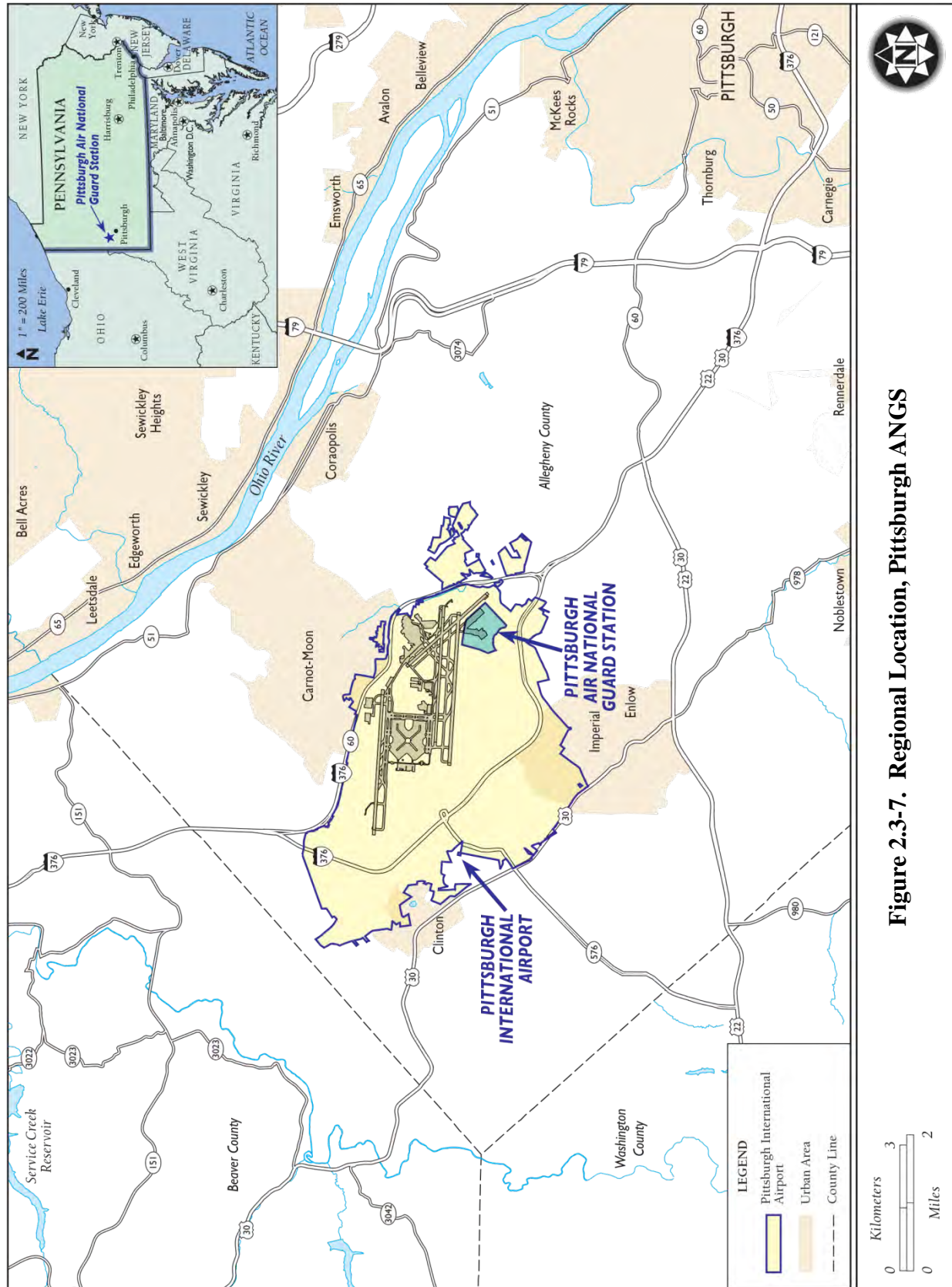


### **2.3.4.2 Mission**

The mission of the 171 ARW is to provide support for federal, state, and community interests by providing timely worldwide air refueling, airlift, and support forces; protecting life and property; and preserving peace, order, and public safety. The 171 ARW currently flies and maintains 16 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 171 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

### **2.3.4.3 Aircraft Conversion**

Under Alternative #4, the 171 ARW would convert from 16 KC-135 PAA and no KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Pittsburgh ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations.



**Figure 2.3-7. Regional Location, Pittsburgh ANG**



## 2.3.4.4 Airfield Operations

Pittsburgh IAP has four runways. Runway 10R/28L is 11,500 feet long and 200 feet wide. Runway 10L/28R is 10,502 feet long and 150 feet wide. Runway 10C/28C is 10,774 feet long for takeoff and 9,708 feet long for landing and 150 feet wide. Runway 14/32 is 8,101 feet long and 150 feet wide (AirNav 2013b).

The 171 ARW currently flies 1,569 sorties annually. According to the unit's scheduling data and airport traffic counts, 926 were flown from Pittsburgh IAP, or 59 percent of the total annual sorties flown (171 ARW 2013a). The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 171 ARW flew 6,943 airfield operations with an average of 7.5 operations per sortie during 2012 (Table 2.3-19).

**Table 2.3-19. Current 171 ARW KC-135 Aircraft Operations at Pittsburgh IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-135	3,272	200	3,176	295	6,448	495	6,943

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

Source: 171 ARW 2013a.

Following the aircraft beddown under Alternative #4, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 sorties, 59 percent of which would be performed at the home-station (Pittsburgh ANG). Thus, 1,186 sorties would be flown at Pittsburgh IAP annually under this alternative. This would be an increase of 27 percent over the baseline 926 sorties currently flown at Pittsburgh IAP (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Pittsburgh IAP under this alternative). Based on 1,186 annual home-station sorties and an average of 7.78 operations per sortie, there would be 9,226 annual home-station operations, or an additional 2,283 airfield operations annually at Pittsburgh IAP (Table 2.3-20). This would increase the average daily airfield operations from 19.0 to 25.3 (Table 2.3-21). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.4.1, *Noise*).

**Table 2.3-20. Proposed 171 ARW KC-46A Operations at Pittsburgh IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	4,287	326	4,275	338	8,562	664	9,226

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night – Between 10 p.m. and 7 a.m. for environmental night.

**Table 2.3-21. Changes to 171 ARW Airfield Operations with Proposed KC-46A Aircraft**

<i>Unit</i>	<i>Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)</i>	<i>Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)</i>
171 ARW	6,943 (19.0)	9,226 (25.3)	2,283 (32.9%)

#### 2.3.4.5      Airspace Operations

The 171 ARW conducts air refueling for both training and contingency missions for the receiver aircraft. Primary air refueling tracks used by the 171 ARW are described in Table 2.3-22. Under Alternative #4, there would be a slight change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will be using the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel), but the minutes in the airspace for each sortie, and the operational training conducted would not change in any of the airspace described.

#### 2.3.4.6      Construction Required

Under Alternative #4, 12 KC-46A PAA aircraft would be beddown at the 171 ARW installation at Pittsburgh ANG; the 171 ARW would also implement minor construction projects for that conversion (Table 2-3-23). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements would also be addressed to the extent practicable. Proposed facilities would be sited approximately as shown in Figure 2.3-8. The precise layout and design of proposed facilities is in the early planning stages, and therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

**Table 2.3-22. Current and Proposed Local Air Refueling Airspace Used by the 171 ARW<sup>1</sup>**

Airspace Unit Altitude <sup>2</sup> Floor and Ceiling	Current Aircraft Proposed Aircraft	Minutes in Airspace for Each Sortie	Average KIAS	ANNUAL SORTIE OPERATIONS	
				Current	Proposed
Duke MOA <sup>3</sup> ATCAA 8,000 feet –FL180 ATCAA FL180-As Assigned	KC-135 KC-46A	30	315	17	18
W105 <sup>4</sup> Surface-FL500	KC-135 KC-46A	45	315	45	54
W107 <sup>4</sup> Surface-Unlimited	KC-135 KC-46A	45	315	35	42
193WA TBD	KC-135 KC-46A	60	210	80	97
AR 777 FL210-FL280	KC-135 KC-46A	75	275	56	68
AR 109H/L FL250-310H FL190-230L	KC-135 KC-46A	45	275	41	49
AR 110 FL240-270	KC-135 KC-46A	50	260	21	25
AR 609 FL180-FL280	KC-135 KC-46A	60	300	25	30
AR 631 FL200-FL260	KC-135 KC-46A	60	265	30	36
AR 206H/L FL280-FL310H FL250-FL270L	KC-135 KC-46A	50	295	14	16
KIWI MOA <sup>3</sup> FL190-FL230	KC-135 KC-46A	60	315	20	24
AR 636 FL200-290	KC-135 KC-46A	60	300	16	19
AR 202 FL260-FL280	KC-135 KC-46A	55	265	29	35
AR 207 FL260-280	KC-135 KC-46A	75	265	37	45
AR 216 FL260-FL280	KC-135 KC-46A	75	265	33	39
AR220 FL190-FL220	KC-135 KC-46A	70	275	239	289
AR 633 FL180-FL230	KC-135 KC-46A	60	275	40	48
AR328 FL180-FL230	KC-135 KC-46A	60	275	20	24

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 171 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.”

2. FL Altitude is Mean Sea Level.

3. Military Operations Area (MOA) but no refuelings occur below 10,000 feet MSL.

4. W-Warning Area Floor is the Surface but no refuelings occur below 10,000 feet MSL.

KIAS = knots indicated airspeed; MOA = Military Operations Area; ATCAA = Air Traffic Control Assigned Airspace; FL = Flight Level

Source: 171 ARW 2013a.



**Table 2.3-23. Proposed 171 ARW Construction Projects at Pittsburgh IAP**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 – Addition to Hangar 302</b>			
This project would involve the addition of a 20,464 SF addition to the existing Maintenance Hangar 302 in order to provide an adequately sized hangar for the new KC-46A aircraft.	20,464	0	FY 2015
<b>Project #2 – Addition to Hangar 320</b>			
This project would involve the addition of a 19,180 SF addition to the existing Fuel Cell Hangar 320 in order to provide an adequately sized hangar for the new KC-46A aircraft.	19,180	0	FY 2015
<b>Project #3 – Internal Renovation to Hangar 301</b>			
This project would include internal renovations only in order to provide sufficient space to house the KC-46A Fuselage Trainer, the Weapons System Trainer, and the Boom Operator Trainer.	0	0	FY 2015
<b>Project #4 – Modifications to Existing Parking Ramp and Taxiway</b>			
This project would include the addition of 143,505 SF of concrete and asphalt to the existing parking ramp and taxiway that leads to the parking ramp.	143,505	88,529	FY 2015
<b>Project #5 – New Hydrants and Fuel Lines and Demolition of Existing Hydrants</b>			
This project would include the addition of eight new fuel hydrants as well as new fuel lines to these hydrants. Approximately 58,335 SF of disturbance would occur as a result of the new hydrants and fuel lines.	3,246	0	FY 2015
<b>Total</b>	<b>186,395</b>	<b>88,529</b>	

Notes: SF = square foot; FY = fiscal year

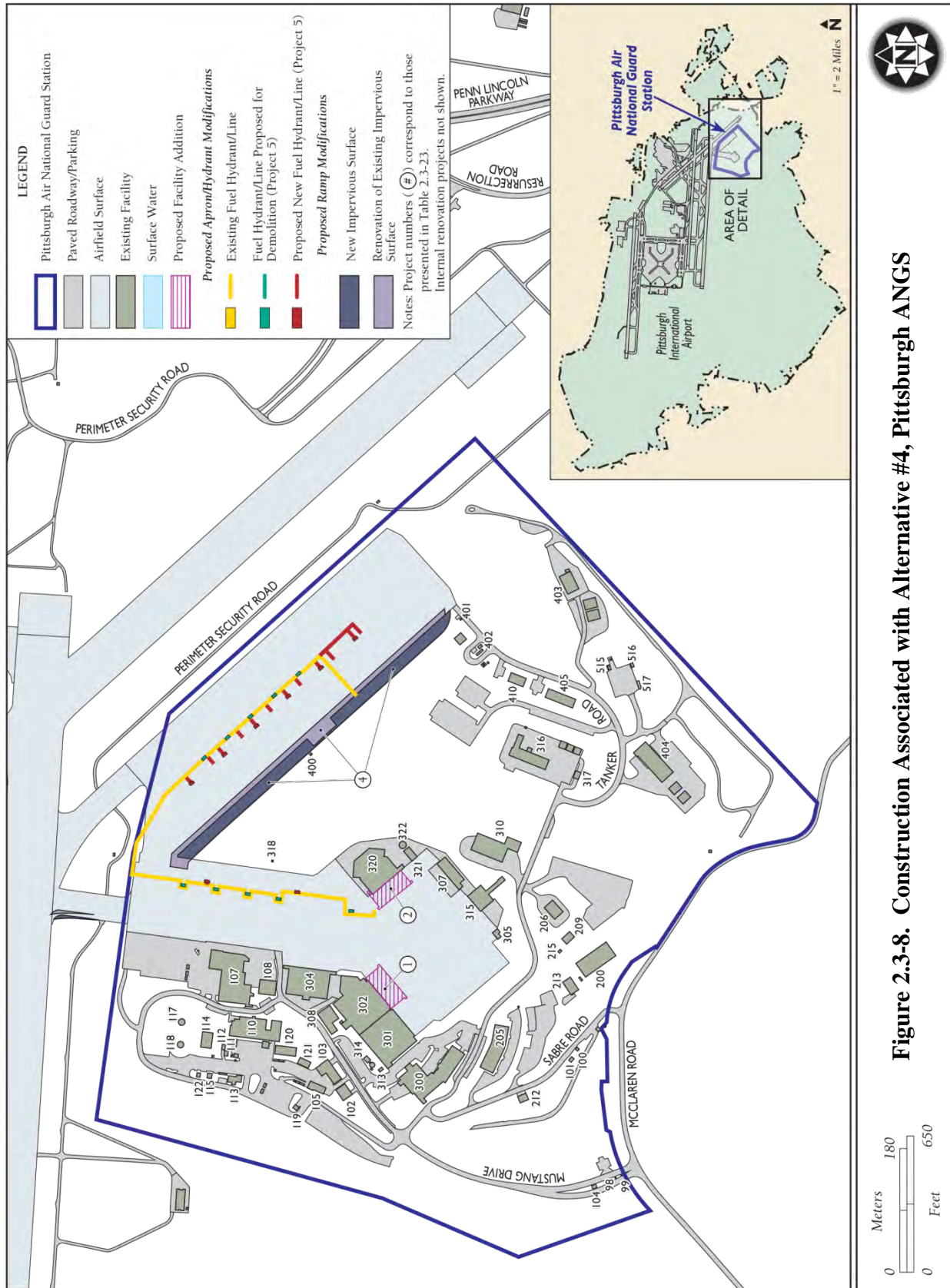


Figure 2.3-8. Construction Associated with Alternative #4, Pittsburgh ANG

Implementation of the KC-46A aircraft beddown would require the 171 ARW to ensure their installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. Although the Pittsburgh ANGS location was deemed to have an acceptable level of facilities to support this beddown, and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2, there remain some functional areas that require modification. Proposed construction includes an addition to Hangar 302, an addition to Hangar 320, internal renovations of Hangar 301, modification to existing ramp and taxiway, and addition and demolition of hydrants and fuel lines on the parking apron.

The projects described below would incorporate LEED and sustainable development concepts, so as to achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be rewarded with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

#### *Addition to Hangar 302*

A minimum of one Maintenance Hangar is required to support the maintenance and operations of KC-46A. Hangars provide an environmentally controlled area to perform maintenance. The hangar bays require enough space to use the support equipment such as stands and carts to perform maintenance functions. The hangars would house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 20,464 SF addition to Hangar 302 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar.



*Hangar 302*

### *Addition to Hangar 320*

A minimum of one Fuel Systems Maintenance Hangar is required to support the maintenance and operations of KC-46A. The Fuel Systems Maintenance Hangar provides space for covered aircraft maintenance, shop, and administrative functions, and contains utilities and safety systems required to perform fuel systems maintenance to include pressure checks and inspections. Aircraft hangar space is required for on-aircraft open fuel cell maintenance. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 19,180 SF addition to Hangar 320 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar.



*Hangar 320*

### *Internal Renovations to Hangar 301*

Internal renovations to Hangar 301 would be made in order to house the KC-46A Fuselage Trainer, the Weapons System Trainer, and the Boom Operator Trainer.

### *Modifications to Existing Parking Ramp and Taxiway*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. Additional concrete would need to be added to the parking ramp and taxiway at Pittsburgh IAP in order to increase the size of the parking ramp to accommodate the larger KC-46A aircraft. In addition, the taxiways would need to be wide enough to support the turning radii of the KC-46A. Therefore, under Alternative #4, the addition of 143,505 SF of concrete and asphalt would be added to the existing parking ramp and the taxiway that leads to the parking ramp. Following the construction, there would be an increase of approximately 88,529 SF of impervious surface as a result of this project.



*Area Adjacent to Taxiway that is Proposed to Receive Pavement Addition*

### *New Hydrants and Fuel Lines and Demolition of Existing Hydrants*

As stated above, the proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all

the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. Under Alternative #4, eight new fuel hydrants would be added to the existing parking ramp as well as new fuel lines to one of these hydrants. Approximately 3,246 SF of disturbance would occur as a result of the new hydrants and fuel lines.

#### 2.3.4.7 Personnel Changes

The 171 ARW currently is authorized 1,306 personnel (Table 2.3-24). Under Alternative #4, the KC-46A mission would add an additional 59 military positions to the authorized manning requirement (approximately a 5 percent increase in total personnel). Changes to the authorized personnel under this alternative are shown in Table 2.3-24.

**Table 2.3-24. Comparison of Currently Authorized and Proposed 171 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	101	101	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	292	328	36
Non-Dual Status (DoD civilians, Air Traffic Control)	0	0	0
<i>Subtotal</i>	393	628	235
<b>Part Time</b>			
Drill Status Guardsmen	913	737	-176
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,306</b>	<b>1,365</b>	<b>59</b>
<b>Total Personnel On Base</b>	<b>1,014</b>	<b>1,037</b>	<b>23</b>

Note: 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

2. Some personnel work off-site but are assigned to the unit.

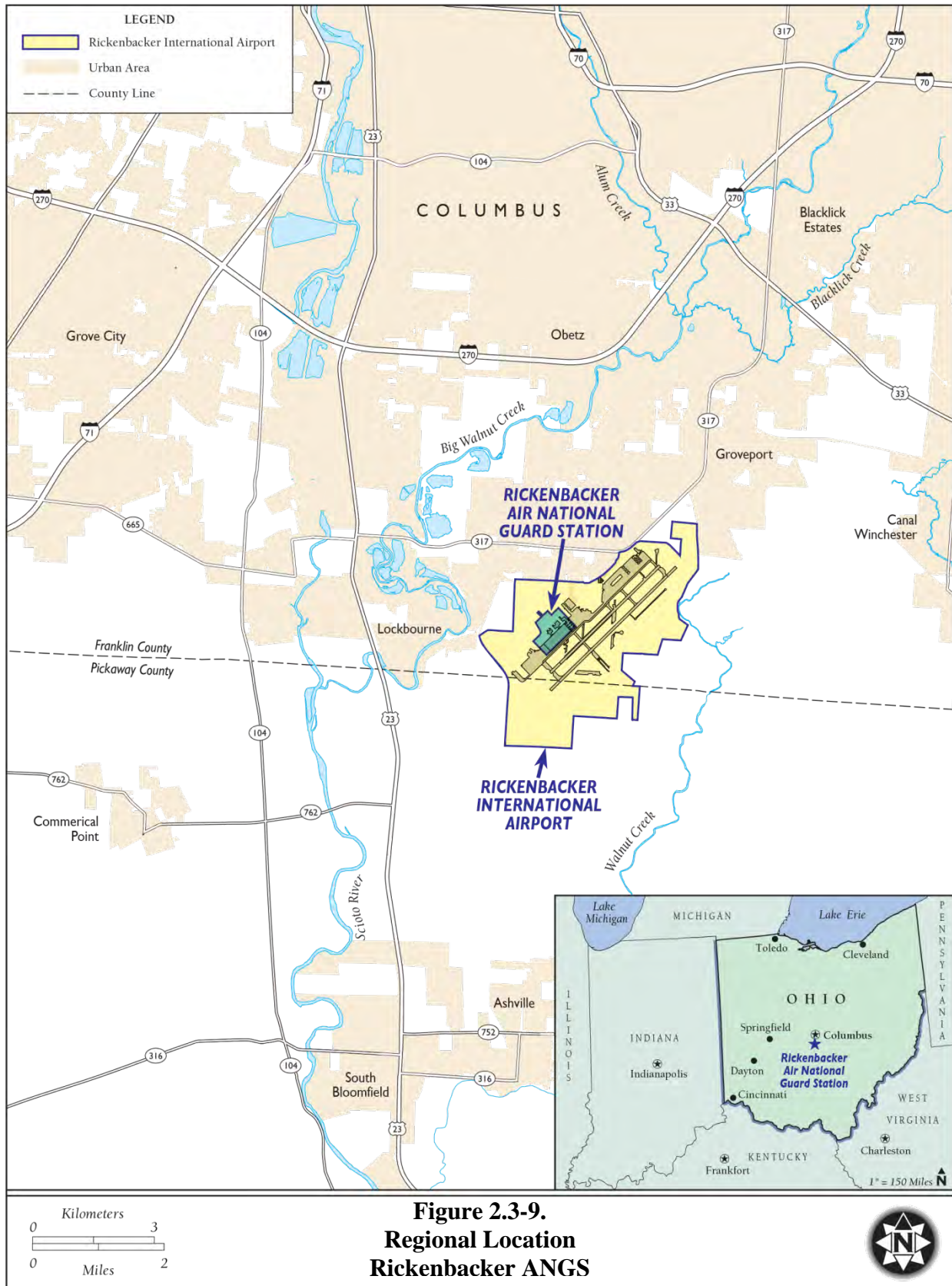
### 2.3.5 Alternative #5 – Rickenbacker Air National Guard Station

#### 2.3.5.1 Background

Rickenbacker ANG, home of the 121<sup>st</sup> Air Refueling Wing (121 ARW) of the Ohio Air National Guard (OH ANG), is located approximately 12 miles southeast of downtown Columbus, Ohio in Franklin County (Figure 2.3-9). The 121 ARW installation is situated on the west side of Rickenbacker IAP, an international airport operated by the Columbus Regional Airport Authority (CRAA). The 121 ARW holds a lease with the Rickenbacker IAP for the installation property with a termination date of 2061. The installation occupies approximately 170 acres, most of which are within the main cantonment area.







### 2.3.5.2 Mission

The mission of the 121 ARW is to provide support for federal, state, and community interests by providing timely worldwide air refueling, airlift, and support forces; protecting life and property; and preserving peace, order, and public safety. The 121 ARW currently flies and maintains 18 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 121 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

### 2.3.5.3 Aircraft Conversion

Under Alternative #5, the 121 ARW would convert from 18 KC-135 PAA and no KC-135 BAI to 12 KC-46A PAA. Concurrent with the beddown of the 12 KC-46A PAA at Rickenbacker ANG, the existing KC-135 aircraft would either be relocated to other installations or retired out of the USAF inventory, depending on the life-cycle status of each particular aircraft. Separate NEPA documentation would be prepared for any of the aircraft relocated to other installations, as necessary.

### 2.3.5.4 Airfield Operations

Rickenbacker IAP has two parallel runways spaced approximately 1,000 feet apart. Runway 05R/23L is 12,102 feet long and 200 feet wide and Runway 05L/23R is 11,902 feet long and 150 feet wide (AirNav 2013c).

In 2012, the 121 ARW flew 2,014 sorties. According to the unit's scheduling data and airport traffic counts, the unit flew 1,289 of these sorties from Rickenbacker IAP, or 64 percent of the total annual sorties flown. The remaining sorties were flown from other airfields in the U.S. and/or overseas in support of operational missions. Actual airfield data indicates that the 121 ARW conducted 6,445 operations with an average of 5.0 operations per sortie at the airfield (Table 2.3-25).

**Table 2.3-25. Current 121 ARW KC-135 Operations at Rickenbacker IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-135	3,223	0	3,061	161 <sup>3</sup>	6,284	161	6,445

Notes: 1. Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

3. Night operations are limited due to Maintenance Union Agreement.

Source: 121 ARW 2013a.



Following the aircraft beddown under Alternative #5, the KC-46A aircraft would fly a total of 8,040 hours annually, with an ASD of 4.0 hours. This would result in 2,010 annual sorties, 64 percent of which would be performed at the home-station (Rickenbacker ANG). Thus, it is expected that up to 1,286 sorties would be flown at Rickenbacker IAP annually under this alternative. This would be essentially the same as the baseline 1,289 sorties (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at Rickenbacker IAP under this alternative). Based on 1,286 annual home-station sorties and an average of 5.33 operations per sortie, there would be 6,857 annual home-station operations, or an additional 412 airfield operations annually at Rickenbacker IAP (Table 2.3-26). This would increase the average daily airfield operations from 17.7 to 18.8 (Table 2.3-27). There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed (see Section 4.5.1, *Noise*).

**Table 2.3-26. Proposed 121 ARW KC-46A Aircraft Operations at Rickenbacker IAP**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	3,424	0	3,157	276	6,581	276	6,857

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night – Between 10 p.m. and 7 a.m. for environmental night.  
 3. Night Operations are limited due to Maintenance Union Agreement.

**Table 2.3-27. Changes to 121 ARW Airfield Operations with Proposed KC-46A Aircraft**

Unit	Total Based KC-135 Annual Airfield Operations (Average Daily Airfield Operations)	Total Proposed KC-46A Annual Airfield Operations (Average Daily Airfield Operations)	Increased Airfield Operations Annually for Proposed KC-46A Operations (Percent Increase)
121 ARW	6,445 (17.7)	6,857 (18.8)	412 (6.4%)

### 2.3.5.5 Airspace Operations

The 121 ARW conducts air refueling for both training and contingency missions for the receiver aircraft. Primary air refueling tracks used by the 121 ARW are described in Table 2.3-28. Under Alternative #5, there would be a slight change to the frequency of use due to the proposed increase in the sorties. The KC-46A will also have a requirement for training as a receiver aircraft (on-loading fuel) and will use the existing air refueling tracks as a receiver in addition to the normal use as a refueling aircraft (off-loading fuel). However, the minutes in the airspace for each sortie and the operational training conducted would not be expected to change in any of the airspace described.

**Table 2.3-28. Current and Proposed Local Air Refueling Airspace Used by the 121 ARW<sup>1</sup>**

Airspace Unit Altitude Floor and Ceiling	Current Aircraft Proposed Aircraft	Minutes in Airspace for Each Sortie	Average KIAS	ANNUAL SORTIE OPERATIONS	
				Current	Proposed
Buckeye MOA <sup>2</sup> ATCAA 6,000 feet MSL -FL500 <sup>3</sup>	KC-135 KC-46A	30	300	100	101
Steelhead MOA ATCAA FL240-FL260	KC-135 KC-46A	30	315	24	24
AR 202 FL260-FL280	KC-135 KC-46A	60	275	150	151
AR 207 FL260-280	KC-135 KC-46A	60	275	200	204
AR 216 FL260-FL280	KC-135 KC-46A	60	275	200	204
AR 220 FL190-FL220	KC-135 KC-46A	60	275	20	21
AR 315 <sup>2</sup> FL190-FL210	KC-135 KC-46A	60	275	300	305
AR 328 FL180-FL230	KC-135 KC-46A	60	275	50	51
AR 455 FL250-FL270	KC-135 KC-46A	60	275	100	101

Notes: 1. This table only shows KC-135 and KC-46A aircraft that are or would be flown by the 121 ARW in this airspace. Additional aircraft flown by other units that use this airspace are not shown.

2. MOA Floor is 6,000 feet MSL but no refueling occurs below 10,000 feet MSL

3. 50,000 feet MSL (FL500)

KIAS = knots indicated airspeed; MOA = military operations area; ATCAA = Air Traffic Control Assigned Airspace; MSL = mean sea level; FL = Flight Level

Source: 121 ARW 2013b.

### 2.3.5.6 Construction Required

Under Alternative #5, 12 KC-46A PAA aircraft would be beddown at the 121 ARW installation at Rickenbacker ANG; the 121 ARW would also implement minor construction projects for that conversion (Table 2.3-29). The proposed construction projects would comply with standards set forth in ANG Handbook 32-1084, *Facility Space Standards* (November 2012). AT/FP requirements would also be addressed to the extent practicable. Proposed facilities would be sited approximately as shown in Figure 2.3-10. The precise layout and design of proposed facilities is in the early planning stages, and therefore, exact locations and layouts are not finalized. Should locations and final layout of the facilities differ substantially from those anticipated and depicted herein, further environmental analysis would be required. Each of these projects is described in more detail in the following sections.

Implementation of the KC-46A aircraft beddown would require the 121 ARW to ensure their installation has properly sized and adequately configured facilities to support 12 KC-46A aircraft. Although the Rickenbacker ANG location was deemed to have an acceptable level of facilities to support this beddown, and has facilities that currently meet the majority of the requirements laid out in Section 2.1.2.2, there remain some functional areas that require

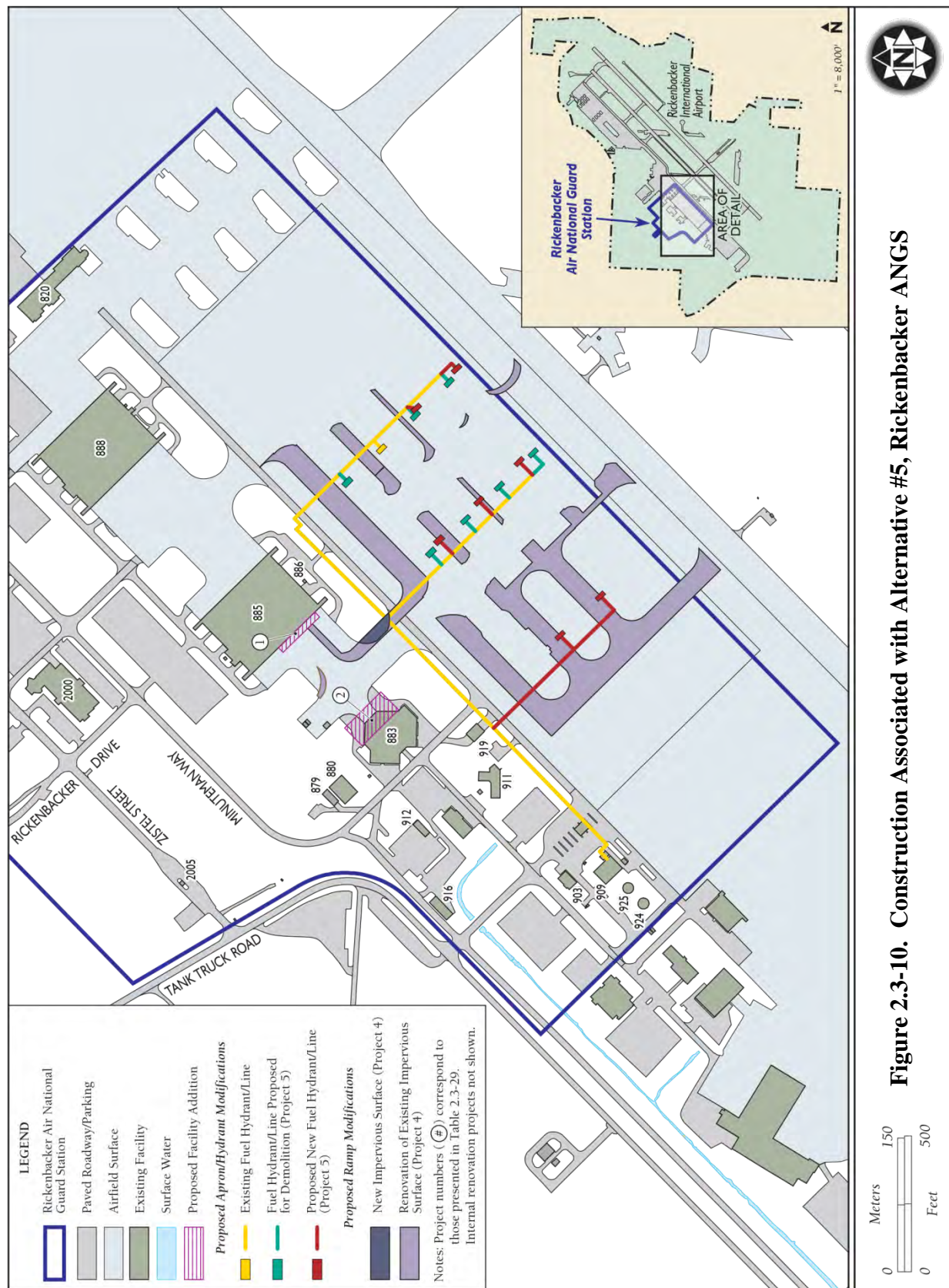
modification. Proposed construction includes additions and renovations to Hangar 885, an addition to Hangar 883, internal renovations of Hangar 888, modifications to the existing ramp and taxiway, and addition and demolition of hydrants and fuel lines on the parking apron.

The projects described below would incorporate LEED and sustainable development concepts, so as to achieve optimum resource efficiency, constructability, sustainability, and energy conservation, while minimizing adverse impacts to the built and natural environments through all phases of their life cycle. This may result in primary facility costs exceeding DoD costing standards, but the initial investment in higher acquisition cost would be rewarded with lower life cycle costs. This is consistent with the requirements of the Energy Policy Act of 2005, 10 USC 2802, EO 13423, and other applicable laws and EOs.

**Table 2.3-29. Proposed 121 ARW Construction Projects at Rickenbacker IAP**

<i>Project Description</i>	<i>Total New Construction Footprint (SF)</i>	<i>New Impervious Surface (SF)</i>	<i>Estimated Year of Implementation</i>
<b>Project #1 – Addition and Modifications to Hangar 885</b>			
This project would involve a 4,000 SF addition to the existing Maintenance Hangar 885 in order to provide an adequately sized hangar for the new KC-46A aircraft, and modification of existing spaces to address changes in the Life Safety code. The Weapons System Trainer and the Boom Operator Trainer would also be installed within this facility.	4,000	0	FY 2015
<b>Project #2 – Addition to Hangar 883</b>			
This project would involve a 17,290 SF addition to the existing Fuel Cell Hangar 883 in order to provide an adequately sized hangar for the new KC-46A aircraft.	17,290	0	FY 2015
<b>Project #3 – Internal Renovation to Hangar 888</b>			
This project would include internal renovations only in order to provide sufficient space to house the KC-46A Fuselage Trainer.	0	0	FY 2015
<b>Project #4 – Modifications to Existing Parking Ramp and Taxilane</b>			
This project would include the renovation of 338,877 SF of concrete to the existing parking ramp and the taxilane that leads to the hangars from the parking ramp, as well as the end of this same parking ramp.	338,877	14,660	FY 2015
<b>Project #5 – New Hydrants and Fuel Lines and Demolition of Existing Hydrants</b>			
This project would include the addition of seven new fuel hydrants. New fuel lines would be added to two of these hydrants, while five would be re-piped from the existing spurs. In addition, demolition of seven hydrants would occur. Approximately 8,163 SF of disturbance would occur as a result of the new hydrants and fuel lines, while an additional 1,206 SF of disturbance would occur as a result of the demolition of existing hydrants and fuel lines.	8,163	0	FY 2015
<b>Total</b>	<b>368,330</b>	<b>14,660</b>	

Notes: SF = square foot; FY = fiscal year



**Figure 2.3-10. Construction Associated with Alternative #5, Rickenbacker ANG**



### *Addition and Modifications to Hangar 885*

A minimum of one Maintenance Hangar is required to support the maintenance and operations of KC-46A. Hangars provide an environmentally controlled area to perform maintenance. The hangar bays require enough space to use the support equipment such as stands and carts to perform maintenance functions. The hangars will house the maintenance shops, tool cribs, and personnel. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135. Therefore, a 4,000 SF addition to Hangar 885 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar. Interior modifications of Hangar 885 are required to address changes to Life Safety Codes.



### *Addition to Hangar 883*

A minimum of one Fuel Systems Maintenance Hangar is required to support the maintenance and operations of KC-46A. The Fuel Systems Maintenance Hangar provides space for covered aircraft maintenance, shop, and administrative functions, and contains utilities and safety systems required to perform fuel systems maintenance to include pressure checks and inspections. Aircraft hangar space is required for on-aircraft open fuel cell maintenance. The KC-46A is a military derivative of a commercial Boeing 767 aircraft and has a slightly larger footprint than the KC-135.



Therefore, a 17,290 SF addition to Hangar 885 would need to be added in order to accommodate the larger aircraft inside the maintenance hangar.

### *Internal Renovations to Hangar 888*

Internal renovations to Hangar 888 would be made in order to house the KC-46A Fuselage Trainer.

### *Modifications to Existing Parking Ramp*

The proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. The correct pavement thickness and strength of the parking ramps and taxiways is also important to avoid damage to the KC-46A and/or to the airfield pavement. During landing, the aircraft is light on fuel and the weight is transferred from the wings to the landing gear as the nose landing gear touches down and the aircraft decelerates. During takeoff the aircraft is heavy, but as the aircraft accelerates the weight is gradually



*Existing Parking Apron*

transferred from the wheels to the wings. Thus, the majority of the damage to the pavement occurs during loading and taxiing prior to departure. Additional concrete would need to be added to the parking ramp and taxilane at Rickenbacker IAP in order to satisfy the thickness and strength requirements for the KC-46A aircraft. In addition, the taxilanes would need to be wide enough to support the turning radii of the KC-46A. Therefore, under Alternative #5, the renovation of 338,877 SF of concrete would be added to the existing parking ramp and the taxilane that leads to the hangars from the parking ramp. Following the construction, there would be an increase of approximately 14,660 SF of impervious surface as a result of this project.

### *New Hydrants and Fuel Lines and Demolition of Existing Hydrants*

As stated above, the proposed beddown of 12 PAA KC-46A aircraft requires a minimum of 8 KC-46A parking spots with a fuel hydrant at each location. A fuel hydrant system provides all the equipment and controls to provide clean fuel to fueling points in the aircraft parking apron. The system reduces the amount of physical movement of fuel around an airfield. Under Alternative #5, seven new fuel hydrants would be added to the existing parking ramp. New fuel lines will be added to two of these, while five will be re-piped from the existing spurs. In addition, demolition of seven hydrants would occur. Approximately 8,163 SF of disturbance would occur as a result of the new hydrants and fuel lines, while an additional 1,206 SF of disturbance would occur as a result of the demolition of existing hydrants and fuel lines. Approximately 1,198 SF of the total disturbance occurring would be temporary disturbance occurring on grassland areas; however, this area would remain a pervious surface following construction.

#### **2.3.5.7 Personnel Changes**

The 121 ARW currently is authorized 1,497 personnel. Under Alternative #5, the KC-46A mission would add an additional 197 military positions to the authorized manning requirement

(approximately a 13 percent increase in total personnel). Changes to authorized personnel under this alternative are shown in Table 2.3-30.

**Table 2.3-30. Comparison of Currently Authorized and Proposed 121 ARW Personnel**

<i>Personnel</i>	<i>Authorized</i>	<i>Proposed</i>	<i>Change</i>
<b>Full Time</b>			
Active Associate (USAF)	0	199	199
Active Guard and Reserve	119	119	0
Dual Status Technician (Guard civilians, federal) <sup>1</sup>	323	336	13
Non-Dual Status (DoD civilians, Air Traffic Control)	0	0	0
<i>Subtotal</i>	<i>442</i>	<i>654</i>	<i>212</i>
<b>Part Time</b>			
Drill Status Guardsmen	1,055	1,040	-15
<b>Total Personnel Assignments<sup>2</sup></b>	<b>1,497</b>	<b>1,694</b>	<b>197</b>
<b>Total Personnel On Base</b>	<b>1,174</b>	<b>1,358</b>	<b>184</b>

*Note:* 1. Total personnel on base is the sum of all categories minus the number of people with two assignments.

2. Some personnel work off-site but are assigned to the unit.

## 2.4 NO ACTION ALTERNATIVE

The CEQ regulation 40 CFR § 1502.14(d) specifically requires analysis of the “No Action” alternative in all NEPA documents. Under the No Action Alternative, the proposed aircraft beddown would not occur, and the NGB would not implement the components described above under the five Action Alternatives. There would be no change in based aircraft; use of the airfield at the proposed locations; or use of Special Use Airspace (SUA), construction, or personnel assigned to the KC-46A aircraft squadron. Under the No Action Alternative, the NGB would continue to conduct their current mission using the existing KC-135 aircraft with multiple configurations and crews that are not trained to accomplish every mission. This lack of standardized equipment and training throughout the fleet would continue to negatively impact the ability for KC-135 aircrews to support, on a large scale, multi-role missions or exploit new tactics and procedures. The continued use of the KC-135 aircraft would not meet the identified needs of the NGB or the USAF; however, this alternative is carried forward for analysis in this EIS per CEQ regulations, and as a baseline from which to compare the potential impacts of the Proposed Action and alternatives.

## 2.5 IDENTIFICATION OF PREFERRED ALTERNATIVE

The USAF has identified Pease ANG as the preferred alternative for the MOB 2 KC-46A beddown. The USAF selected Pease ANG based on an operational analysis, results of site surveys, and military judgment factors.

## 2.6 SUMMARY OF ANTICIPATED IMPACTS AMONG ALTERNATIVES

Comparing and differentiating among alternatives comprises a fundamental premise of NEPA. A summary of each alternative, including the No Action Alternative, is presented in



Table 2.6-1, which can then be used to compare the anticipated impacts of each alternative. A summary and comparison of the anticipated impacts associated with implementation of each alternative for this action is presented in Table 2.6-2.

**Table 2.6-1. Summary of Alternatives (Current/Proposed)**

	<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
Refueler Aircraft Type	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-46A	KC-135 / KC-135
Number of Refueler Aircraft (PAA)	12 / 12	8 / 12	8 / 12	16 / 12	18 / 12	Same as current
ARW Refueler Flying Hours	4,868 / 8,040	3,687 / 8,040	6,219 / 8,040	6,016 / 8,040	7,215 / 8,040	Same as current
Annual Sorties	1,478 / 2,010	1,112 / 2,010	1,382 / 2,010	1,569 / 2,010	2,014 / 2,010	Same as current
% Home-Station Operations	64% / 64%	75% / 75%	44% / 44%	59% / 59%	64% / 64%	Same as current
Home-Station Sorties	946 / 1,286	834 / 1,508	614 / 884	926 / 1,186	1,289 / 1,286	Same as current
Annual Airfield Operations Home-Station -- ANG	10,452 / 14,562	8,340 / 17,608	6,140 / 8,840	6,943 / 9,226	6,445 / 6,857	Same as current
Total Actual Airfield Operations (including ANG) based on 2012 FAA/Tower reports	24,630 / 28,740	62,686 / 71,875	37,410 / 40,110	139,217 / 141,500	39,436 / 39,848	Same as current
Total FAR Part 150 (Baseline 2006/2007) Approved Operations (including ANG)	N/A	N/A	N/A	321,436 <sup>1</sup> / 317,602	67,160 <sup>2</sup> / 60,877	Same as current
Construction -- new	Hangar modifications; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; new simulator building; ramp/taxiway modifications	Hangar modifications; building additions; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/taxiway modifications	Hangar modifications; new fuel hydrants; ramp/ taxiway modifications	None
Construction -- renovations	Internal building renovations	Internal hangar renovations	Internal building renovations	Internal hangar renovations	Internal hangar renovations	None
Proposed Personnel Change (ANG and active duty)	+194	+287	+171	+59	+197	0

Notes: 1. 2006 Part 150 Study data

2. 2007 Part 150 Study data

ANGS = Air National Guard Station; JB MDL = Joint Base McGuire-Dix-Lakehurst; PAA = ;Primary Aerospace Vehicles Authorized; ARW = Air Refueling Wing; ANG = Air National Guard; FAR = Federal Aviation Regulations

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Noise</b>					
<p>Airfield operations would increase by 4,110 (39 percent increase in 190 ARW operations, 17 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 9,268 (111 percent increase in 108 WG operations, 15 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Airfield operations would increase by 2,700 (44 percent increase in 157 ARW operations, 7 percent increase in total airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 3,834 (29 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2006]; and a 2 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. Impacts from noise would be negligible.</p>	<p>Airfield operations would decrease by 6,283 (48 percent decrease from the currently published baseline FAR Part 150 Noise Compatibility Program [2007]; and a 1 percent increase in actual 2012 airfield operations).</p> <p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Impacts from noise would be negligible.</p>	<p>Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. The noise environment at each of the five alternative airfields would continue to be managed through their existing AICUZ or FAR Part 150 airfield compatibility programs. There would be no additional Noise impacts at any of the alternative installations under the No Action Alternative.</p>

Table 2.6-2. Summary of Impacts

Forbes ANG	JB MDL	Pease ANG	Pittsburgh ANG	Rickenbacker ANG	No Action Alternative
<b>Air Quality</b>					
Forbes ANG is located in an attainment area for all criteria pollutants. While there would be increases in operational criteria pollutant emissions, they would be below the PSD threshold, and would not be significant. Impacts from construction emissions and operational HAP emissions would be negligible.	The 108 WG installation is in a nonattainment area for O <sub>3</sub> (marginal nonattainment) and maintenance area for PM <sub>2.5</sub> and CO, and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO <sub>x</sub> , which would be above the <i>de minimis</i> threshold of 100 tpy. A conformity determination will be prepared. Impacts from construction emissions and operational HAP emissions are negligible.	The Pease ANG installation is in a maintenance area for O <sub>3</sub> , and is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Pittsburgh ANG is located within a non-attainment area for PM <sub>2.5</sub> , a moderate nonattainment area for the 1997 8-hour O <sub>3</sub> standard, and is classified as a marginal nonattainment area for the 2008 8-hour O <sub>3</sub> standard, according to 40 CFR 81.339. The Pittsburgh ANG is therefore subject to <i>de minimis</i> thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.	The Rickenbacker ANG is located in a nonattainment area for the O <sub>3</sub> and PM <sub>2.5</sub> NAAQS. While there are increases in operational criteria pollutant emissions, they are below the PSD/ <i>de minimis</i> thresholds for all pollutants and are not significant. Impacts from construction emissions and operational HAP emissions are negligible.	Air Quality at each alternative airfield would remain as it currently is. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. Emissions at each of the alternative installations would continue to be in compliance with their respective SIPs. There would be no additional impacts to Air Quality at each alternative installation under the No Action Alternative.

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Safety</b>					
There would be a 39 percent increase in actual 190 ARW airfield operations (17 percent increase in total airfield operations) at Forbes Field Airport with commensurate increase in mishap and BASH potential.	There would be a 111 percent increase in actual 108 WG airfield operations (15 percent increase in total airfield operations) at JB MDL with a commensurate increase in mishap and BASH potential.	There would be a 44 percent increase in actual 157 ARW airfield operations (7 percent increase in total airfield operations) at Portsmouth IAP with a commensurate increase in mishap and BASH potential.	There would be a 33 percent increase in actual 2012 171 ARW airfield operations (2 percent increase in total airfield operations) at Pittsburgh IAP with a commensurate increase in mishap and BASH potential.	There would be a 6 percent increase over the actual 2012 121 ARW airfield operations (1 percent increase in total airfield operations) at Rickenbacker IAP with a commensurate increase in mishap and BASH potential.	Both ground and flight safety at each alternative airfield would remain as they currently are. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Safety under the No Action Alternative.
Construction activities would involve no unusual or extraordinary techniques. During construction, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.					
<b>Soils and Water</b>					
There would be approximately 5.9 acres of temporary soil disturbance and no new impervious surface as a result of the proposed construction.	There would be approximately 4.7 acres of temporary soil disturbance and 2.4 acres of new impervious surface as a result of the proposed construction.	There would be approximately 3.0 acres of temporary soil disturbance and 0.5 acres of new impervious surface as a result of the proposed construction.	There would be approximately 4.3 acres of temporary soil disturbance and 2.0 acres of new impervious surface as a result of the proposed construction.	There would be approximately 8.5 acres of temporary soil disturbance and 0.3 acres of new impervious surface as a result of the proposed construction.	Soils and Water Resources at each alternative airfield would remain as they currently are. There would be no additional impacts to Soils and Water Resources as a result of the No Action alternative.
To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.		To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore, the Farmland Protection Policy Act does not apply to this alternative. As a result, impacts to soil and water resources would be negligible.			

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Biological Resources</b>					
<p>No impacts to vegetation and wetlands.</p> <p>Impacts to wildlife species from operational noise would be imperceptibly beneficial due to the slight decrease in noise.</p> <p>39 percent increase in 190 ARW (17 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to wildlife due to construction would be negligible.</p> <p>No special status species or critical habitat is known to occur on Forbes Field Airport; therefore, there would be no impacts to these species.</p>	<p>Impacts to vegetation would be minor.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>111 percent increase in 108 WG (15 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed species or critical habitat is known to occur on McGuire Field.</p> <p>Six state listed species are known to occur on McGuire Field. There would be no impacts to federally listed and impacts to state listed species would be minor.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction.</p> <p>44 percent increase in 157 ARW (7 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Portsmouth IAP; therefore, there would be no impacts to federally listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No significant impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 33 percent increase in 171 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>No federally listed or critical habitat is known to occur on Pittsburgh IAP; therefore, there would be no impacts to federally listed species.</p> <p>There would be no impacts to state listed species.</p>	<p>Impacts to vegetation would be negligible.</p> <p>No impacts to wetlands.</p> <p>Impacts to wildlife species from operational noise would be minor due to the 6 percent increase in 121 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds.</p> <p>Impacts to state listed species would be minor.</p> <p>No federally listed species or critical habitat is known to occur on Rickenbacker IAP; therefore, there would be no impacts to federally listed species.</p>	<p>There would be no change to Biological Resources under this alternative.</p> <p>There would be no additional impacts to Biological Resources as a result of the No Action Alternative.</p>

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Cultural Resources</b>					
Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. Minor interior modifications to Building 679 would not affect the NRHP-eligibility of the building. The Kansas SHPO has concurred with these findings. The installation has been intensively surveyed and no known traditional resources are known to occur. Two responses have been received from the Kaw Nation and the Wichita and Affiliated Tribes stating that they have no objection to the Proposed Action. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts	Construction activities associated with this alternative would be primarily limited to the developed areas of the installation in the areas of the aircraft hangars and airfield pavements. A small amount of construction (0.15 acre) would occur in forested area near this developed area. Based on previous archaeological surveys at McGuire Field, the area of proposed construction does not contain any known NRHP-eligible sites and is considered to have a low potential for containing buried materials. The New Jersey SHPO has concurred with these findings. No traditional resources have been identified. Responses from the Delaware Tribe of Indians and the Delaware Nation stated that their review indicated no religious or culturally significant sites in the area. SHPO consultation for this EIS has provided concurrence that no historic properties would be	Based on previous archaeological surveys on the installation, the area of proposed construction does not contain any known NRHP-eligible sites or traditional resources. Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The New Hampshire SHPO has concurred with these findings. The Penobscot Indian Nation is the only federally-recognized tribal entity affiliated with Pease ANG, and has responded stating that they have no issues with the Proposed Action. No impacts to cultural impacts would be expected to occur.	The installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the Pittsburgh ANG. Construction activities associated with this alternative are limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements and all impacts would be negligible. Correspondence has been received from all tribes consulted including the Seneca Nation of Indians, the Cayuga Nation of New York, the Tonowanda Band of Seneca, Tuscarora Nation of New York, and the Onondaga Nation of New York stating that they have no objection to the Proposed Action	Construction activities at Rickenbacker ANG would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements. The installation has been intensively surveyed for cultural resources and no traditional cultural resources are known to exist in the area. The one significant archaeological resource that is located within the installation is not within the proposed construction areas and would not be impacted. Two NRHP-eligible hangars (883 and 885) could be adversely impacted by construction under this alternative. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, additional consultation would be conducted to minimize and mitigate	Under the No Action Alternative, Cultural Resources at each alternative installation would remain as they currently are. None of the proposed facility construction/renovations would occur at any of the installations, and thus, there would be no potential impacts to facilities that are eligible for listing on the NRHP. There would be no surface disturbance from construction activities, and thus no potential to impact unknown archaeological resources. There would be no additional impacts to Cultural Resources as a result of the No Action Alternative.



**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Forbes ANG is now complete.	affected under the proposed action.			adverse effects to these buildings. Correspondence has been received from the Peoria Tribe of Indians, the Pokagon Band of Potawatomi Indians, the Turtle Mountain Band of Chippewa Indians of North Dakota, the Delaware Nation, and the Shawnee Tribe who indicated that they had no objection to the proposed project. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Rickenbacker ANG is now complete.	
<b>Land Use</b>					
Total annual airfield operations would increase by 4,110 (17 percent).	Total annual airfield operations would increase by 9,268 (15 percent).	Total annual airfield operations would increase by 2,700 (44 percent).	Airfield operations would decrease by 3,834 (29 percent decrease) from the currently	The number of airfield operations would decrease by 6,283 (48 percent decrease) from the	Land Use at each alternative airfield would remain as it currently is. Each of the five installations would retain the

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<p>Acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres (55 acres off airport-controlled property). Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would be compatible with current land use and zoning designations and would result in imperceptibly beneficial impacts by reducing the off-airport areas currently exposed to a DNL between 65 dB and 70 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour off DoD-controlled property would increase by 419 acres. An additional 8 acres of residential use areas would be exposed to greater than 65 dB DNL.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in minor adverse impacts due to an increase in off-airport areas (including residential areas) exposed to a DNL between 65 dB and 75 dB. Airport Hazard Areas would not be affected.</p>	<p>Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A.</p> <p>This alternative would result in negligible impacts due to an increase in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>published FAR Part 150 Noise Compatibility Program (2006), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>currently published FAR Part 150 Noise Compatibility Program (2007), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres.</p> <p>Decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-controlled property that lie within the 65 dB contour.</p> <p>Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to a DNL above 65 dB. Airport Hazard Areas would not be affected.</p>	<p>KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as they currently do. There would be no additional impacts to Land Use under the No Action Alternative at any of the alternative locations.</p>

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Infrastructure and Transportation</b>					
Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increased demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.					Infrastructure and Transportation at each alternative installation would remain as they currently are. There would be no change to the based personnel at any of the alternative locations. There would be no increase in use of various utilities or roadway systems under this alternative. There would be no additional impacts under the No Action Alternative.

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Hazardous Materials and Waste</b>					
There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	One of the ERP Sites, SS-39, overlaps with a portion of the existing fuel hydrants that would be capped, as well as the proposed addition to Hangar 3336. Remedial investigation is on-going with this site. It is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations. If contaminated media were encountered during the course of site preparation or site development, work would cease until 108 WG Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 171 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media are encountered during the course of site preparation or site development, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.	<p>Hazardous Materials and Wastes at each alternative installation would remain as described in the baseline section for each alternative location. The benefit of eliminating ozone depleting substances with the KC-46A would not be realized.</p> <p>The throughput and management of hazardous materials and wastes would not change from baseline conditions.</p> <p>There would be no additional impacts to Hazardous Materials and Wastes under the No Action Alternative.</p>

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
There would not be an increased risk of hazardous waste releases or exposure from this alternative. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations.					
<b>Socioeconomics</b>					
Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.					<p>Socioeconomics at each alternative installation would remain as described in the baseline section for each alternative. The minor economic benefit of additional based personnel and construction activity would not occur at any of the alternative installations.</p> <p>There would be no additional impacts to Socioeconomics under the No Action Alternative.</p>

**Table 2.6-2. Summary of Impacts**

<i>Forbes ANG</i>	<i>JB MDL</i>	<i>Pease ANG</i>	<i>Pittsburgh ANG</i>	<i>Rickenbacker ANG</i>	<i>No Action Alternative</i>
<b>Environmental Justice and the Protection of Children</b>					
<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Forbes Field Airport exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>The percentage of minority and low-income persons affected would remain approximately the same as baseline.</p> <p>There would be no disproportionate impacts to minority or low-income populations. The child development center that is currently under the 65 dB contour would be located under the 70 dB contour. There would be no special health or safety risks to children.</p>	<p>There are no residential areas within the noise contours. No additional schools would be located within the vicinity of Portsmouth IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Pittsburgh IAP exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>There would be no residential populations, including no minority or low-income populations, and no additional schools exposed to a DNL of 65 dB or above.</p> <p>There would be no disproportionate impacts to minority or low-income populations.</p> <p>There would be no special health or safety risks to children.</p>	<p>Under the No Action Alternative, Environmental Justice and the Protection of Children at each alternative installation would remain as described in the baseline section for each alternative. There were no disproportionate impacts to low-income, minority, or children identified under any of the action alternatives. There would be no additional impacts as a result of the No Action Alternative.</p>

*Notes:* 190 ARW = 190<sup>th</sup> Air Refueling Wing; dB = decibel; DNL = Day-Night Average Sound Level; DoD = Department of Defense; 108 WG = 108<sup>th</sup> Wing; 157 ARW = 157<sup>th</sup> Air Refueling Wing; FAR = Federal Aviation Regulations; AICUZ = Air Installation Compatible Use Zone; ANG = Air National Guard Station; PSD = Prevention of Significant Deterioration; HAP = hazardous air pollutant; O<sub>3</sub> = ozone; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; tpy = tons per year; CFR = Code of Federal Regulations; SIP = State Implementation Plan; BASH = Bird/Wildlife Aircraft Strike Hazard; JB MDL = Joint Base McGuire-Dix-Lakehurst; IAP = International Airport; 171 ARW = 171<sup>st</sup> Air Refueling Wing; 121 ARW = 121<sup>st</sup> Air Refueling Wing; NRHP = National Register of Historic Places; SHPO = State Historic Preservation Office; ERP = Environmental Restoration Program; LBP = lead-based paint; ACM = asbestos-containing material; USAF = United States Air Force

## 2.7 MITIGATION

Mitigation measures avoid, minimize, remediate, or compensate for environmental impacts. CEQ regulations (40 CFR 1508.20) define mitigation to include the following:

1. Avoiding the impact altogether by not taking a certain action or parts of an action.
2. Minimizing impacts by limiting the degree or magnitude of the action, and its implementation.
3. Rectifying the impact by repairing, rehabilitating, or restoring the affected environment.
4. Reducing or eliminating the impact over time by preservation and maintenance operations during the life of the action.
5. Compensating for the impact by replacing or providing substitute resources or environments.

Avoiding, minimizing, or reducing potential impacts has been a priority guiding the development of the KC-46A alternatives and the proposed aircraft operations associated with each. Measures to minimize impacts are designed into the alternatives; applied to construction, operation, or maintenance involved in the action; or implemented as compensatory measures.

Depending on which base is eventually selected to host the MOB 2 KC-46A beddown, there are potential mitigation actions that will be required. These mitigation actions would be carried forward in implementing the selected alternative. Listed below are the potential mitigations that could be required at JB MDL and Rickenbacker ANG. The proponent of the action is responsible for ensuring that mitigations are carried forward. No mitigation actions have been identified for Forbes ANG, Pease ANG, and Pittsburgh ANG.

If JB MDL is selected to host the MOB 2 KC-46A beddown, mitigation for air quality would be required. The 108 WG installation is in a nonattainment area for O<sub>3</sub> (marginal nonattainment), and maintenance area for CO and PM<sub>2.5</sub>, and is therefore subject to *de minimis* thresholds (see Section 4.2.2 and Appendix F). Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO<sub>x</sub>, which would be above the *de minimis* threshold of 100 tpy. If JB MDL is selected to host the MOB 2 KC-46A beddown, a conformity determination must be completed, demonstrating compliance with the SIP, prior to signature of the ROD.

If Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, mitigation for adverse impacts to cultural resources could be required (see Section 4.5.6). Two of the hangars (885 and 888) proposed for additions, modifications, and renovations are eligible to the NRHP. The Ohio SHPO concurred with the eligibility determination. Hangar 885 would have an addition and renovations inside to house the new aircraft and support facilities. Because these renovations



would alter a structure that is considered eligible for the NRHP, the construction would have an adverse effect on a historic property. Modification to Hangar 888 would all be interior; however, they could have an adverse effect to this NRHP-eligible resource. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, further consultation would be conducted to minimize and mitigate adverse effects (see Appendix B, Section B3).

Following signature of the ROD, a Mitigation Plan will be prepared in accordance with 32 CFR 989.22(d). The Mitigation Plan will address specific mitigations identified for the selected alternative and agreed to during the environmental impact analysis process.

## CHAPTER 3 EXISTING CONDITIONS

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This section describes the natural and human environment that would be affected by implementation of the various alternatives described in Chapter 2. In describing the affected environment, a framework for understanding the potential direct, indirect, and cumulative effects of each alternative, including the No Action Alternative is provided.

As directed by guidelines contained in NEPA, CEQ regulations, and 32 CFR 989, *Environmental Impact Analysis Process*, the description of the affected environment focuses only on those resource areas potentially subject to impacts and should be commensurate with the anticipated level of environmental impact.

The affected environment is described for 11 resource topics: Noise, Air Quality, Safety, Soils and Water, Biological Resources, Cultural Resources, Land Use, Infrastructure and Transportation, Hazardous Materials and Waste, Socioeconomics, and Environmental Justice and the Protection of Children. The following sections reference Appendix A, which presents an introduction that defines each of the resources addressed in the section, summarizes applicable laws and regulations that apply to all installations, defines key terms as necessary, and describes the general ROI within which the effects from implementation of the various alternatives are anticipated to occur. The ROI varies from resource to resource, but in general, effects from the proposed activities are expected to be concentrated around each of the alternative installations. A more specific ROI for each installation/resource is described within each Chapter 3 section that follows, as are any local/regional regulations.

### 3.1 FORBES AIR NATIONAL GUARD STATION

Forbes ANG, home of the 190 ARW of KS ANG, is located approximately 5 miles south of Topeka in Shawnee County, Kansas. The 190 ARW base is situated on the northwest side of Forbes Field Airport, a municipal airport owned and operated by MTAA.

#### 3.1.1 Noise

To evaluate noise impacts in the vicinity of a military installation located within a commercial airport with a published Federal Aviation Regulations (FAR) Part 150 Airport Noise Compatibility Study, the USAF allows for use of the Federal Aviation Administration's (FAA's) Integrated Noise Model (INM) to generate DNL noise contours; however, if the primary noise generator are military aircraft, NOISEMAP may also be used. For this noise analysis, the USAF generated DNL noise files reflecting 2012 airport operations using NOISEMAP, a computer program used to model noise exposure in the vicinity of military airfields. For commercial

airfields, the most current and approved FAR Part 150 noise files were used for the baseline conditions and airfield operations and for noise impacts, these baselines were used for analysis. For other resource areas, the most current 2012 FAA/airport airfield operational data was used. For more detailed information on the noise modeling methods, see Appendix A, Section A.1.2.

### 3.1.1.1 Baseline Operations

In 1984, the MTAA published a noise study in support of the 1984 Airport Master Plan Update (Johnson 2013) and represents 1982 operational levels (Forbes Field Airport 1984). Due to the age of the data, and because the military aircraft (KC-135 and Army National Guard HH-60's) are the prominent aircraft based at Forbes Field Airport, the USAF completed a new study to estimate baseline noise exposure using the NOISEMAP computer program. The new study was completed to reflect 2012 airport operations and is used as the baseline for this analysis.

Based on aircraft operations data validated in May 2013, approximately 24,630 total aircraft operations occurred at Forbes Field Airport during the 12-month period ending December 2012 (Forbes ANGS 2013). An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. Table 3.1.1-1 summarizes the frequency of aircraft operations for Forbes Field Airport based on information provided by base staff, flying organizations, and air traffic control personnel. The majority of aircraft traffic includes air cargo, commercial regional jets (air taxi), and larger commercial aircraft and other based military aircraft, along with based ANG KC-135 aircraft. Although the number of aircraft operations at an installation varies from day to day, for Forbes Field Airport, operations were calculated for an average busy day for military aircraft and an average annual day (AAD) for civilian aircraft. Yearly operations were averaged over the number of flying days flown (260 days) for military aircraft and across all 365 days of the year for civilian aircraft. Table 3.1.1-1 reflects a total of approximately 79 total aircraft operations on an AAD (10,452 divided by 260 days plus 14,178 divided by 365 days) flown at Forbes Field Airport. Approximately 8 percent of the total operations at Forbes Field Airport occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.1.1-1. Current Forbes Field Airport Annual Aircraft Operations**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-135	4,541	685	4,390	836	8,931	1,521	10,452
Other Aircraft <sup>3</sup>	6,848	241	6,848	241	13,696	482	14,178
<b>Total</b>	<b>11,389</b>	<b>926</b>	<b>11,238</b>	<b>1,077</b>	<b>22,627</b>	<b>2,003</b>	<b>24,630</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night – Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: L-1011, MD-80, Lear 35, and HH-60.

Source: Forbes ANGS 2013.

Using the 2012 baseline data, the 190 ARW KC-135 aircraft flew a total of 10,452 annual airfield operations, or an average of 40 airfield operations a day. Approximately 15 percent of the total KC-135 operations occur during environmental night. Approximately 42 percent of total operations at Forbes Field Airport are accomplished by the 190 ARW KC-135 aircraft.

### 3.1.1.2 Runway and Flight Profiles

Forbes Field Airport aircraft use straight out departures, straight in approaches, Instrument Flight Rule (IFR) or radar closed patterns, and Visual Flight Rule (VFR) closed patterns as the basic flight patterns for training, local arrival, and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise*.

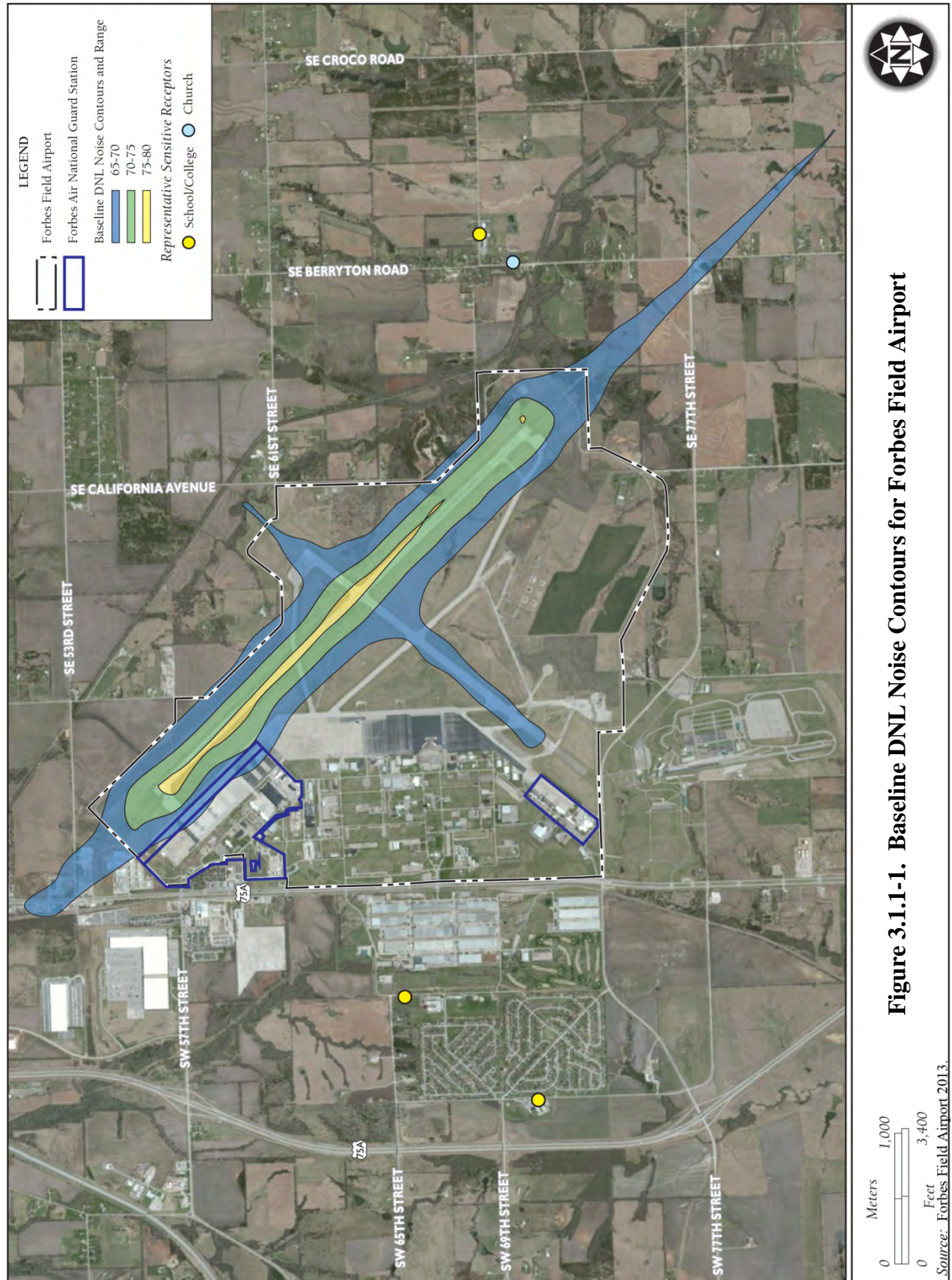
### 3.1.1.3 Existing Noise Environment

Noise contours developed for the baseline conditions at Forbes Field Airport are shown in Figure 3.1.1-1. The acreage within each DNL contour on and off Forbes Field Airport property is shown in Table 3.1.1-2 for the baseline condition. Approximately 971 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.1.7, *Land Use*.

**Table 3.1.1-2. Acres within Baseline Noise Contours, Forbes Field Airport**

<i>Noise Level (dB)</i>	<i>On-Airport (acres)</i>	<i>Off-Airport (acres)</i>	<i>Total (acres)</i>
65-70	448	165	613
70-75	308	0	308
75-80	50	0	50
80-85	0	0	0
Greater than 85	0	0	0
<b>Total</b>	<b>806</b>	<b>165</b>	<b>971</b>

*Note:* dB = decibel



**Figure 3.1.1-1. Baseline DNL Noise Contours for Forbes Field Airport**

### *Potential Hearing Loss*

There is no property off the Forbes Field Airport that falls within the baseline 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### 3.1.1.4 Forbes Field Airport Noise Abatement Procedures

Forbes Field Airport has no published noise abatement procedures. The 117<sup>th</sup> Air Refueling Squadron (117 ARS) (a squadron of the 190 ARW) has one noise abatement procedure published in their In-Flight Guide (117 ARS 2011) that requires pilots to avoid overflight of a housing area located 2 nautical miles (nm) west of Runway 13. This published procedure minimizes flying activities of the 117 ARS that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations.

#### 3.1.1.5 Forbes Air National Guard Station Noise Complaint Procedures

Currently, noise complaints are handled through the MTAA. There have been no recent noise complaints (Johnson 2013).

### **3.1.2 Air Quality**

#### 3.1.2.1 Regulatory Setting

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The Kansas Department of Health and Environment Bureau of Air is the agency responsible for the regulation of air quality within the state of Kansas. The state of Kansas regulates air quality through the Kansas Air Quality Act, Section 65.3001 through 65.3030 of the Kansas Air Quality Statutes, and the Kansas Air Quality Regulations, Section 28, Article 19 of the Kansas Administrative Regulations. The state of Kansas has not adopted separate ambient air quality standards from the NAAQS. The NAAQS are summarized in Table 3.1.2-1.



**Table 3.1.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	<b>NATIONAL STANDARDS<sup>a</sup></b>	
		<i>Primary<sup>b,c</sup></i>	<i>Secondary<sup>b,d</sup></i>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary
	30-Day Average	—	—

*Notes:* a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

*Source:* USEPA 2012.

Forbes ANG, home of the 190 ARW of the KS ANG, is located on Forbes Field Airport, approximately 5 miles south of Topeka in Shawnee County, Kansas. The U.S. Environmental Protection Agency (USEPA) has classified the state of Kansas as an attainment/unclassified area for all criteria pollutants. The Proposed Action is therefore not subject to the requirements of Section 176(c) of the Clean Air Act (CAA), as articulated in the USEPA General Conformity Rule.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas



used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

### 3.1.2.2 Climate and Meteorology

The state of Kansas has a continental climate, meaning that it is not influenced by any major bodies of water. Summers are warm with the majority of annual precipitation occurring from April through September. Winters tend to be cold with an occasional mild period and moderate snowfall amounts. Much of the severe weather for which Kansas is often noted is due to weather patterns that bring cold dry air into contact with warm moist air over the state. There are many severe thunderstorms each year with an average of 111 tornadoes per year in the state (High Plains Regional Climate Center 2013).

Annual average temperatures in Topeka range from an average minimum temperature of 43.5 degrees Fahrenheit (°F) to an average maximum temperature of 65.8°F, with a yearly average of 54.6°F (Western Regional Climate Center 2013). January is the coldest month, with average minimum temperatures of 17.6°F. July is the hottest month in the area, with average maximum temperatures reaching 89.7°F. In the Topeka area, average annual precipitation (1948-2012) was 34.77 inches (High Plains Regional Climate Center 2013).

The prevailing wind direction for the state of Kansas is from the south. The average annual wind speed for Topeka is 10.4 miles per hour (High Plains Regional Climate Center 2013).

### 3.1.2.3 Regional and Local Air Pollutant Sources

The area surrounding Forbes Field Airport is mainly used for agriculture, with some development in the surrounding areas to the north, west, and south. The USEPA's National Emissions Inventory includes data for the year 2008 for Shawnee County. Table 3.1.2-2 summarizes the regional emissions (stationary, area-wide sources, and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.1.2-2. Regional Emissions for Shawnee County, Kansas**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	2,143	2,009	3,853	6,036	635	342
Area-Wide Source	3,866	7,543	410	34	17,149	2,117
Mobile Sources	31,885	6,840	2,902	77	348	280
<b>Total</b>	<b>37,894</b>	<b>16,392</b>	<b>7,165</b>	<b>6,147</b>	<b>18,132</b>	<b>2,739</b>

*Notes:* Numbers may not add precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.1.2.4 Baseline Air Quality

Representative background air monitoring data for the 190 ARW for the period 2008-2012 are shown in Table 3.1.2-3. The closest monitoring station to the Forbes Field Airport is located in Topeka, and monitors ozone (O<sub>3</sub>), particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>), and particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>). The closest monitoring station to the Forbes Field Airport that monitors carbon monoxide (CO), nitrogen dioxide (NO<sub>2</sub>), and sulfur dioxide (SO<sub>2</sub>) is located in Kansas City. Values measured at the Kansas City monitoring station are likely to be conservative because Kansas City is more developed than the Forbes Field Airport area.

As shown in Table 3.1.2-3, some O<sub>3</sub> exceedances have been measured in Topeka during the recent 5-year period; however, the area has not been designated as a nonattainment area for O<sub>3</sub>. One exceedance of the 24-hour PM<sub>2.5</sub> standard was measured in 2011; however, that exceedance was attributed to an exceptional event. The 1-hour SO<sub>2</sub> standard was exceeded in 2008 and 2010; however, the 99<sup>th</sup> percentile did not exceed the standard. The data show that the area did not experience violations of all other NAAQS.

**Table 3.1.2-3. Ambient Air Monitoring Data for Topeka and Kansas City, Kansas**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.068	0.068	0.082	0.084	0.085
Days above federal standard (0.075 ppm)	0	0	2	4	8
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	26.6	35.6	29.1	40.8	35.2
Days above federal standard (35 µg/m <sup>3</sup> )	0	0	0	1	0
Annual Average value (µg/m <sup>3</sup> )	10	8.7	9	9.9	8.6
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	51	78	72	76	67
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	2.2	2.4	2.1	2.3	3.3
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.8	1.6	1.6	1.6	2.0
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.066	0.062	0.077	0.061	0.064
98 <sup>th</sup> Percentile (ppm)	0.062	0.045	0.054	0.053	0.052
Days above federal standard (0.100 ppm)	0	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.090	0.050	0.081	0.065	0.071
99 <sup>th</sup> Percentile (ppm)	0.043	0.043	0.049	0.048	0.050
Days above federal standard (0.075 ppm) <sup>1</sup>	1	0	1	0	0
Peak 24-hour value (ppm)	0.017	0.015	0.013	0.012	0.013

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

Numbers may not add precisely due to rounding.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.1.2.5 190<sup>th</sup> Air Refueling Wing Emissions

The 190 ARW currently flies and maintains 12 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 190 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aerospace support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

Emissions for the 190 ARW have been quantified in the *Final 2006 Air Emissions Inventory* (190 ARW 2008a). The inventory evaluated the emissions from the 190 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 100 tons per year (tpy) for all criteria pollutants and less than 10 tpy of any single hazardous air pollutant (HAP) or 25 tpy of any combination of HAPs. The 190 ARW does not currently hold a Federal Operating Permit as its emissions are below the major source thresholds, and is not required to hold Class I or Class II

Operating Permits under the Title V permitting requirements or the requirements of the Kansas Department of Health and Environment.

Stationary source emissions at the 190 ARW include emissions from natural gas-fired heating units, waste oil boilers, diesel generators, and open detonation of ordnance. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 190 ARW installation considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet above ground level [AGL]). Baseline emissions also include stationary sources and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #1, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and privately owned vehicles (POVs) associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3-1, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.1.2-4.

**Table 3.1.2-4. 190 ARW Baseline Emissions at Forbes ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	3.63	54.09	99.23	8.48	0.45	0.45	23,585
AGE	0.01	0.02	0.02	0.00	0.00	0.00	2,446
Engine Testing	0.17	2.52	0.69	0.11	0.01	0.01	299
POVs	1.94	26.38	1.46	0.02	0.06	0.03	993
<b>Total Baseline Emissions</b>	<b>5.75</b>	<b>83.00</b>	<b>101.39</b>	<b>8.61</b>	<b>0.53</b>	<b>0.49</b>	<b>27,324</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle

*Source:* 190 ARW 2008a.

### 3.1.3 Safety

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/Runway Protection Zones (RPZs), explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures,

aircraft mishaps, bird/wildlife aircraft strike hazards (BASH), and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Forbes Field Airport.

#### 3.1.3.1 Ground Safety

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 190 ARW are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by Air Force Occupational Safety and Health (AFOSH) requirements. The 190 ARW provides fire, crash, rescue, and structural fire protection for the installation and its aircraft. The 190 ARW has a cooperative response agreement with the local Metropolitan Topeka Airport fire department for mutual aid in fire protection, first responder and lifesaving services, and hazardous materials incident response.

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas (see Appendix A, Section A.3, for specific RPZ discussion and Section 3.1.7 for land use compatibilities). The city of Topeka, Kansas utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations.

##### *Explosive Safety*

The 190 ARW stores, maintains, and uses a small range of munitions required for performance of their mission. Ordnance for the 190 ARW is currently stored in an aboveground storage magazine, with an operating location in a nearby Munitions Inspection Building. Both facilities are located on the north end of the flightline near the engine test cell and have limits of 4,000 pounds and 1,000 pounds of Hazard Division explosives 1.3 and 1.4, respectively.

##### *Anti-Terrorism/Force Protection*

Many of the military facilities at the 190 ARW installation at Forbes Field Airport were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the 190 ARW would incorporate these standards to the maximum extent practicable.

### 3.1.3.2 Flight Safety

#### *Flight Safety Procedures*

Aircraft flight operations from Forbes Field Airport are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures* 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

#### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight-hours (Air Force Safety Center [AFSEC] 2012). The 190 ARW has not experienced a Class A mishap in the past 11 years (190 ARW 2013b). Together, the low KC-135 mishap rate and the lack of 190 ARW mishap history would make the chances of a Class A accident involving a KC-135 aircraft at Forbes Field Airport an unlikely event.

#### *Bird/Wildlife Aircraft Strike Hazard*

USAF BASH Team maintains a database that documents all reported bird/wildlife aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 190 ARW of the KS ANG has an on-going BASH program through which information and assistance is freely shared between airfield users, the Forbes Field Airport staff, and the local air traffic controllers. Serious BASH-related accidents within the immediate Forbes Field Airport area are unusual and have never resulted in a Class A mishap (190 ARW 2013a). The 190 ARW has recorded 63 minor BASH incidents from 2002 to 2012, with an average of fewer than six per year (190 ARW 2013a).

#### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Airbases must establish jettison areas and

procedures to minimize the impact of fuel jettisoning. Ideally, jettison areas are established at altitudes above 20,000 feet AGL, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources. AFIs cover the fuel jettison procedures, and local operating policies define specific fuel ejection areas for each base.

After receiving approval from the Operations Group Commander and coordinating with Kansas City Air Route Traffic Control Center, the primary fuel jettison area for the 190 ARW is a holding pattern between 20 and 30 miles southwest of the field at 21,000 feet MSL. The aircrew would follow fuel jettisoning procedures in AFI 11-2KC135, *C/KC-135 Operations Procedures* (2010).

### **3.1.4 Soils and Water**

#### **3.1.4.1 Soils**

This area of Kansas is within the Interior Plains on a glacial drift plain with broad, smooth ridgetops and slopes that are nearly level to strongly sloping. Loess covers the surface of almost all of the uplands in this area underlying glacial drift (U.S. Department of Agriculture [USDA] 2006). The 190 ARW installation is located on relatively flat improved land with an elevation of approximately 1,080 feet MSL (Kansas Army National Guard 2010).

The Natural Resources Conservation Service (NRCS) Soil Survey for Pawnee County, Kansas identifies the following three individual soil types at the installation:

*Ladysmith silty clay loam, 0 to 1 percent slopes:* This soil is typically found on summits and uplands from weathered limestone and shale. This soil type displays properties that would potentially limit building site development due to high shrink-swell potential, low strength, and depth to saturated zone. In addition, this soil type is designated as Prime Farmland (NRCS 2013a). Approximately 70 percent of the installation is composed of this soil type.

*Ladysmith silty clay loam, 1 to 3 percent slopes:* This soil is identical to the soil type above; however, the slopes are slightly steeper. This soil type is also designated as Prime Farmland (NRCS 2013a). Approximately 28 percent of the installation is composed of this soil type.

*Pawnee clay loam, 4 to 8 percent slopes, eroded:* This soil type is often found on side slopes of till plains. The rating class for building site development is considered very limited due to high shrink-swell potential, low strength, and depth to saturated zone. In addition, this soil type is considered a Farmland of Statewide Importance (NRCS 2013a). Approximately 2 percent, located in the northwestern corner of the installation, is composed of this soil type.



#### 3.1.4.2 Surface Water

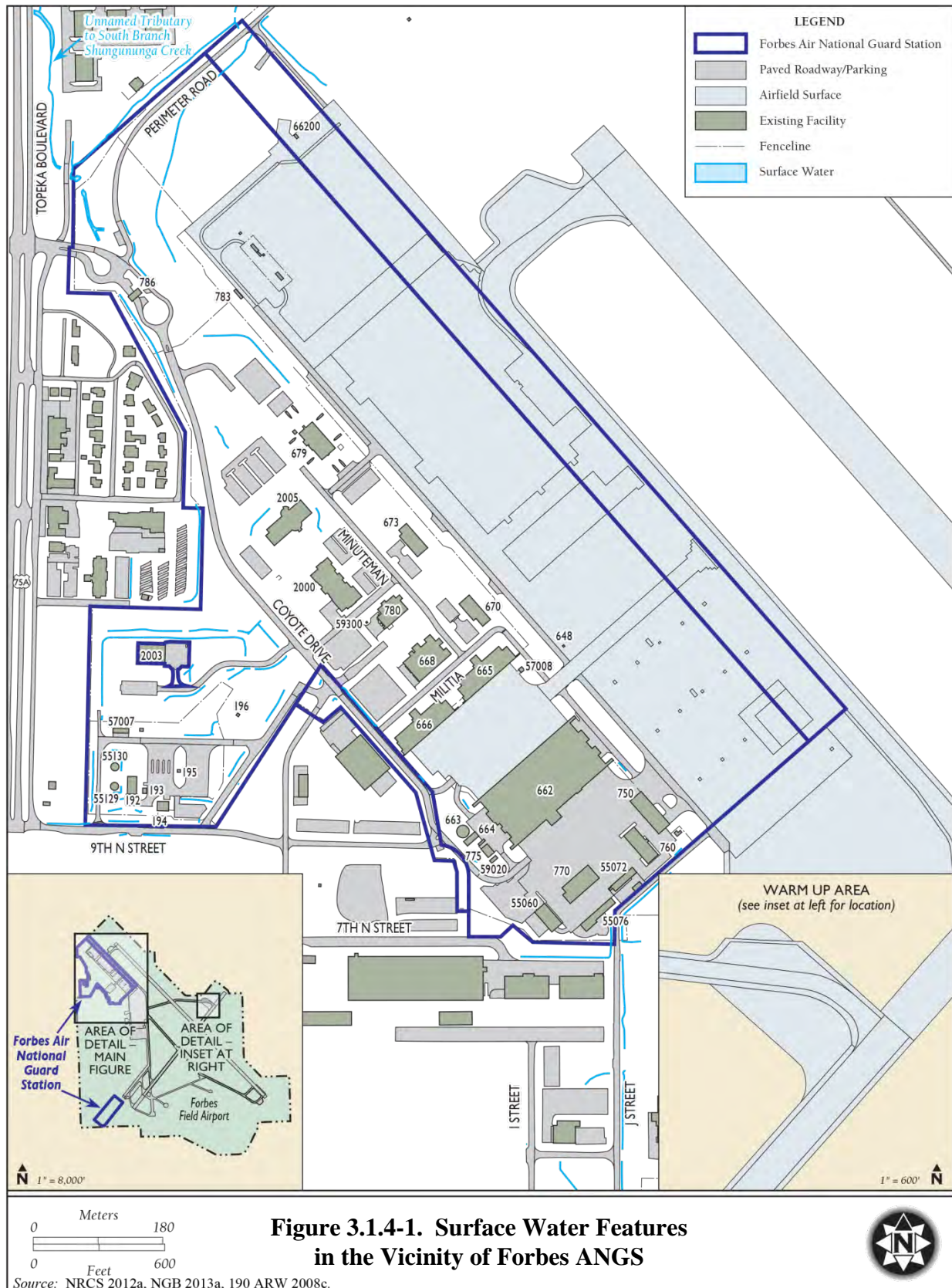
The 190 ARW installation is located within the Shunganunga Creek Watershed, a sub-basin of the Middle Kansas Watershed that encompasses over 5,684 square miles within the state of Kansas (USEPA 2013b). The Kansas River valley is 138 miles long; this course roughly follows the maximum extent of the Kansan glaciation, and the river likely began as a path of glacial meltwater drain (Kansas Center for Agricultural Resources and the Environment 2011). The Shunganunga Creek Watershed drains the Shunganunga Creek until it joins the Kansas River further downstream.

Surface water features within the vicinity of the 190 ARW installation include Lynn Creek to the east and South Branch Shunganunga Creek to the west (Figure 3.1.4-1). The Kansas River is approximately 6 miles north of the installation and the Wakarusa River is approximately 3 miles south. Forbes Field Airport is located on a drainage divide between Lynn Creek to the east and the South Branch of Shunganunga Creek to the west. Lynn Creek flows southeasterly into the Wakarusa River approximately 5 miles from the installation. The South Branch Shunganunga Creek flows north into the Kansas River about 6.5 miles from the installation (190 ARW 2008b).

Surface water within the installation primarily consists of a series of manmade ditches, storm sewers, and drainage swales. Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes. There are three primary drainage basins on the installation: SDO-001, -002, and -003. All three outfalls ultimately join the South Branch Shunganunga Creek. The two outfalls associated with industrial activity (SDO-001 and -002) are regulated under the Kansas General Permit for Stormwater Runoff Associated with Industrial Activity (S-ISWA-1111-1). The permit is administered by the Kansas Department of Health and the Environment under the auspice of the USEPA (190 ARW 2012a).

#### 3.1.4.3 Groundwater

Groundwater in this area often occurs in valley-fill of alluvium and terrace deposits associated with the Kansas River Valley. There is no regional circulation of groundwater in this area due to the highly dissected nature of the upland topography. Therefore, water level fluctuations in upland wells are a direct result of local additions or withdrawals of groundwater. Water-level fluctuations in wells in the valley alluvium are somewhat more complex owing to the influence of the Kansas River and its tributaries which tend to reverse normal groundwater gradients (Kansas Geological Survey 2012).



Groundwater resources underlying the 190 ARW are found in two distinct units: the Nodaway Coal underlying bedrock and the unconsolidated material overlying the bedrock. The water table occurs at 10 feet below ground surface beneath most of the installation but ranges from 2 to 24 feet in portions of the installation. Groundwater flow is generally to the northwest. Due to lack of hydraulic connectivity of groundwater underlying the installation, groundwater does not flow from one end of the installation to the other, but occurs as isolated pockets. The potential for contaminant migration in groundwater underlying the installation is low due to the lack of hydraulic connectivity (190 ARW 2008b).

#### 3.1.4.4 Floodplains

Per the Federal Emergency Management Agency (FEMA) Flood Insurance Rate Map for Shawnee County, Kansas, Panel 310 (Map Number 20177C0310E, Effective September 29, 2011), the 190 ARW installation is located within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding (FEMA 2011).

### 3.1.5 Biological Resources

#### 3.1.5.1 Vegetation

Forbes Field Airport occurs within the Prairie Parkland (Temperate) Province. Vegetation in this region typically is forest-steppe characterized by intermixed prairie, groves, and bands of deciduous trees. Prairies are dominated by grasses such as big bluestem (*Andropogon gerardii*), little bluestem (*Schizachyrium scoparium*), switchgrass (*Panicum virgatum*), and Indian grass (*Sorghastrum nutans*). Upland forests are dominated by oak (*Quercus* spp.) and hickory (*Carya* spp.) (Bailey 1995). The majority of the airport is developed or actively landscaped, with little natural vegetation or habitat remaining.

#### 3.1.5.2 Wildlife

Due to the lack of substantial pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present at the airport and the 190 ARW installation consists of species that are highly adapted to developed and disturbed areas. Forbes ANG is located within the Central Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found at Forbes Field Airport or its vicinity are protected under the Migratory Bird Treaty Act of 1918 (MBTA). Common bird species observed on the installation include Killdeer (*Charadrius vociferous*), Barn Swallow (*Hirundo rustica*), Great Horned Owl (*Bubo virginianus*), European Starling (*Sturnus vulgaris*), Chimney Swift (*Chaetura pelagica*), Western Meadowlark

(*Sturnella neglecta*), Mourning Dove (*Zenaida macroura*), American Kestrel (*Falco sparverius*), American Robin (*Turdus migratorius*), Broad-winged Hawk (*Buteo platypterus*), Franklin's Gull (*Spermophilus franklinii*), Rock Pigeon (*Columbia livia*), Lesser Scaup (*Aythya affinis*), Horned Lark (*Eremophila alpestris*), and Eastern Meadowlark (*Sturnella magna*). Other common wildlife include the white-tailed deer (*Odocoileus virginianus*), coyote (*Canis latrans*), red fox (*Vulpes vulpes*), striped skunk (*Mephitis mephitis*), and eastern cottontail (*Sylvilagus floridanus*) (190 ARW 2004, 2012b).

### 3.1.5.3 Special Status Species

No federally or state listed species have been observed at Forbes Field Airport. The potential for several federally and state listed species to occur within Shawnee County within the vicinity of the airport exists; however, there is little to no habitat for these species within the airport or the installation. A list of these species can be found in Appendix E. There is no critical habitat located on the installation.

### 3.1.5.4 Wetlands

No wetland delineation has been conducted on the 190 ARW installation (190 ARW 2004). In addition, no National Wetland Inventory wetlands occur on the installation (U.S. Fish and Wildlife Service [USFWS] 2013). A general survey of the proposed construction sites conducted in March 2013 showed no signs of wetlands.

## 3.1.6 Cultural Resources

### 3.1.6.1 Archaeological Resources

All undeveloped and relatively undisturbed areas of the 190 ARW installation have been intensively surveyed for archaeological resources and no archaeological resources have been identified at the 190 ARW installation (KS ANG 2008).

The 2008 cultural resources survey verified that the entire installation has low to no probability for archaeological resources due to past disturbances from construction and the high level of development. Additionally, the installation lacks the types of landforms associated with previously recorded cultural resources on adjacent lands (KS ANG 2008, 2010). The Kansas SHPO concurred with these findings (Zollner 2008).

### 3.1.6.2 Architectural Resources

All of the 190 ARW installation's 24 buildings pre-dating the end of the Cold War (pre-1990) have been inventoried and evaluated for NRHP eligibility (KS ANG 2008). One building

(Building 679) was determined eligible by the Kansas SHPO for listing in the NRHP. The remaining 23 buildings were determined not eligible for listing in the NRHP. The Kansas SHPO concurred with these determinations (see Zollner 2008 in Appendix B4). Building 679 is eligible for listing in the NRHP under criterion A for having contributed to events important in history (the U.S. defensive military response during the Cold War) and under criterion C as a prime example of a particular type of architecture. It was one of only ten 150-men alert readiness structures constructed in the U.S., and one of approximately 40 alert crew dormitories of the various sizes nationwide that are extant today. In May of 2008, the Kansas SHPO received notice of a proposed major renovation of Building 679. Subsequently, a Memorandum of Agreement was signed among the Kansas SHPO, the KS ANG, and the 190 ARW that outlined procedures to mitigate the adverse effects the renovations would have to this NRHP-eligible building (see Appendix B4). The building was demolished to the foundation and entirely rebuilt the following year.

### 3.1.6.3 Traditional Resources

The 190 ARW contains no known traditional resources; however, eight federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified including: Citizen Potawatomi Nation, Delaware Nation, Kaw Nation, Osage Nation of Oklahoma, the Prairie Band Potawatomi Tribe, Absentee Shawnee Tribe of Oklahoma, East Shawnee Tribe of Oklahoma, and the Wichita and Affiliated Tribes.

### 3.1.7 Land Use

Forbes ANG is located on Forbes Field Airport, a public use airport owned by the MTAA. The airfield is located in Topeka, Shawnee County, Kansas, about 10 miles south of the city center. The 190 ARW installation consists of approximately 160 acres on the northwest corner of Forbes Field Airport, adjacent to the runway.

Land adjacent to the airfield in unincorporated Shawnee County is traditionally agricultural and remains sparsely populated and rural in character. On the west side of the airfield within the city limits of Topeka, industrial uses have developed along U.S. Highway 75. Long-term land use for the city is guided by a comprehensive plan. Short-term actions are regulated by zoning ordinances implemented through the Topeka Municipal Code and Shawnee County (City of Topeka 2011, Shawnee County 2013)

Zoning surrounding the airport generally supports compatible land use planning and provides for protection of the areas surrounding Forbes Field Airport. The Topeka Municipal Code 1981 § 4-55 defines and establishes airport hazard zones, height limitations, and land use restrictions

within these zones. This zoning protects RPZs. Detailed descriptions of RPZs can be found in Section A.3.1.1 of Appendix A. The City of Topeka has zoned the areas to the west of the airfield for industrial use. A triangular area, north of the airport boundary and between U.S. Highway 75 and S.E. 53<sup>rd</sup> Street, is a Planned Unit Development (PUD) district, which allows more flexibility in the use of land and structures to account for specific site features than standard land use categories. The PUD north of the airport currently includes industrial uses and vacant land, but also accommodates streets and commercial use (City of Topeka 2011). The unincorporated areas to the east of the airfield are zoned as Residential Reserve District, where the maximum density permitted is one single-family dwelling per 3 acres minimum. This designation provides a transitional area between urbanized development and rural-agricultural areas where increased urbanization occurs if municipal services and facilities were to become available (Shawnee County 2013).

Currently, aircraft noise from Forbes Field Airport exposes approximately 166 acres of off-airport areas of land zoned as industrial, residential reserve, and PUD to noise levels between 65 dB and 70 dB DNL. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB and 70 dB DNL off-airport noise contour areas. Figure 3.1.7-1 shows an overlay of the baseline noise contours onto a map displaying the existing land use in the vicinity of Forbes Field Airport.







### **3.1.8 Infrastructure and Transportation**

#### **3.1.8.1 Potable Water System**

Potable water for the 190 ARW installation is provided by the City of Topeka. Potable water in the area is supplied primarily from the Kansas River. The City of Topeka Water Division pumps an average of approximately 8 trillion gallons of water per year to its customers (City of Topeka 2013a). In calendar year (CY) 2012, 2,424,824 gallons of potable water were supplied to the 190 ARW installation (190 ARW 2013b).

#### **3.1.8.2 Wastewater**

The 190 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including oil/water separator discharge (OWS), wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 190 ARW installation is conveyed into the municipal sewage system to the City of Topeka Wastewater Treatment Plant. The City owns two wastewater treatment plans, The Oakland and the North Topeka Wastewater Treatment Plants, which have a combined capacity to treat 28 million gallons of wastewater daily (City of Topeka 2010).

#### **3.1.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 190 ARW Stormwater Pollution Prevention Plan (SWPPP) (2012), the 190 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.1.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.1.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 190 ARW installation by West Star Energy via an underground powerline. Natural gas is supplied by Kansas Gas Service via an 8-inch main line. Electricity consumption for CY 2012 at the 190 ARW installation was 6,144,451 kilowatt-hours. Natural gas consumption for CY 2012 at the 190 ARW installation was 152,900 cubic feet (190 ARW 2013b).

### 3.1.8.5 Solid Waste Management

Municipal solid waste at the 190 ARW installation is managed in accordance with the 190 ARW Solid Waste Management Plan (190 ARW 2009a) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 190 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 190 ARW installation and transported by contractor to the Rolling Meadows Waste Management facility in Topeka, Kansas.

### 3.1.8.6 Transportation

The 190 ARW installation is located within close proximity to several major highways. Interstate (I-) 70 and I-470 lie to the north of the installation and run primarily east and west. In addition, I-335 intersects with I-470 and runs north and south, to the west of the installation. The installation's main gate is accessed from SW Topeka Boulevard, which can be accessed from I-470 or U.S. Highway 75.

## 3.1.9 Hazardous Materials and Waste

### 3.1.9.1 Hazardous Materials

Hazardous materials are used at the 190 ARW installation for aircraft operations support and maintenance, including petroleum, oil, and lubricant (POL) management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight simulation. Types of hazardous substances found on the 190 ARW installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (190 ARW 2009b).

There is currently one 1,500-gallon aboveground storage tank (AST) on the 190 ARW installation in Building 176 that stores polyvinyl chloride. There are currently two underground storage tanks (USTs) located on the 190 ARW installation. One is located at Building 775 and is

used for capturing an accidental release of pesticide. The other is an 8,000-gallon UST in the POL (ANG 2008).

### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, lead-based paint (LBP), and polychlorinated biphenyls (PCBs). Asbestos-containing material (ACM) is known to occur in Buildings/Hangars 665, 666, 673, 679, 692, 770, and 780. ACM was removed from Buildings 151 and 167 prior to a recent renovation that was completed. In addition, ACM was removed from Buildings 656 and 659 prior to their demolition in the early 1990s (190 ARW 2005).

An LBP survey has not been conducted at the 190 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation.

The installation is considered PCB free. PCBs may still be present in older light ballasts; however, these are not regulated as PCB equipment or PCB-contaminated equipment (ANG 2008).

#### 3.1.9.2 Hazardous Waste Management

The 190 ARW Oil and Hazardous Substances Spill Prevention and Response Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (190 ARW 2012c). The 190 ARW Hazardous Waste Management Plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (190 ARW 2009b).

The 190 ARW is regulated as a Small Quantity Generator of hazardous waste and maintains USEPA Identification Number KS0572824043. A hazardous waste generation point is where the waste is initially created or generated. A satellite accumulation point (SAP) is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at an SAP are accumulated in appropriate containers before being transferred to the installation central accumulation point (CAP). There are six SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 662, 668, and 770. The installation CAP is located in Building 57008 (190 ARW 2009b).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Two former OWSs were located on the installation but were removed in the 1990s. Currently there are no active OWSs located within the 190 ARW installation (190 ARW 2005).

### 3.1.9.3 Environmental Restoration Program

Ten potentially contaminated Environmental Restoration Program (ERP) sites were identified in 1986 for closure at the 190 ARW.

For all except three sites, Decision Documents for no further action were recorded due to a determination to have little or no threat for contaminant migration. For the remaining three sites, Decision Documents for no further action but periodic groundwater monitoring were recorded (190 ARW 2005). Table 3.1.9-1 provides details for each of these sites and Figure 3.1.9-1 shows the locations.

**Table 3.1.9-1. ERP Sites within the 190 ARW Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
1	This site is adjacent to the JP-4 storage area where contamination was judged to be minimal. Monitoring conducted during 1990-1993 at these three sites were completed with no contaminants reported above detection limits.	Closed
6	This site is a surface drainage ditch and storm sewer overflow. Low contaminant concentrations and relative immobility of contaminants cause the risk to the public or the environment to be judged minimal. Monitoring conducted during 1990-1993 at these three sites were completed with no contaminants reported above detection limits.	Closed
8	This site is the refueling hydrant C, where Total Petroleum Hydrocarbon was reported in groundwater and soil gas samples. No evidence of contaminant migration was indicated. Monitoring conducted during 1990-1993 at these three sites were completed with no contaminants reported above detection limits.	Closed

*Notes:* ERP = Environmental Restoration Program

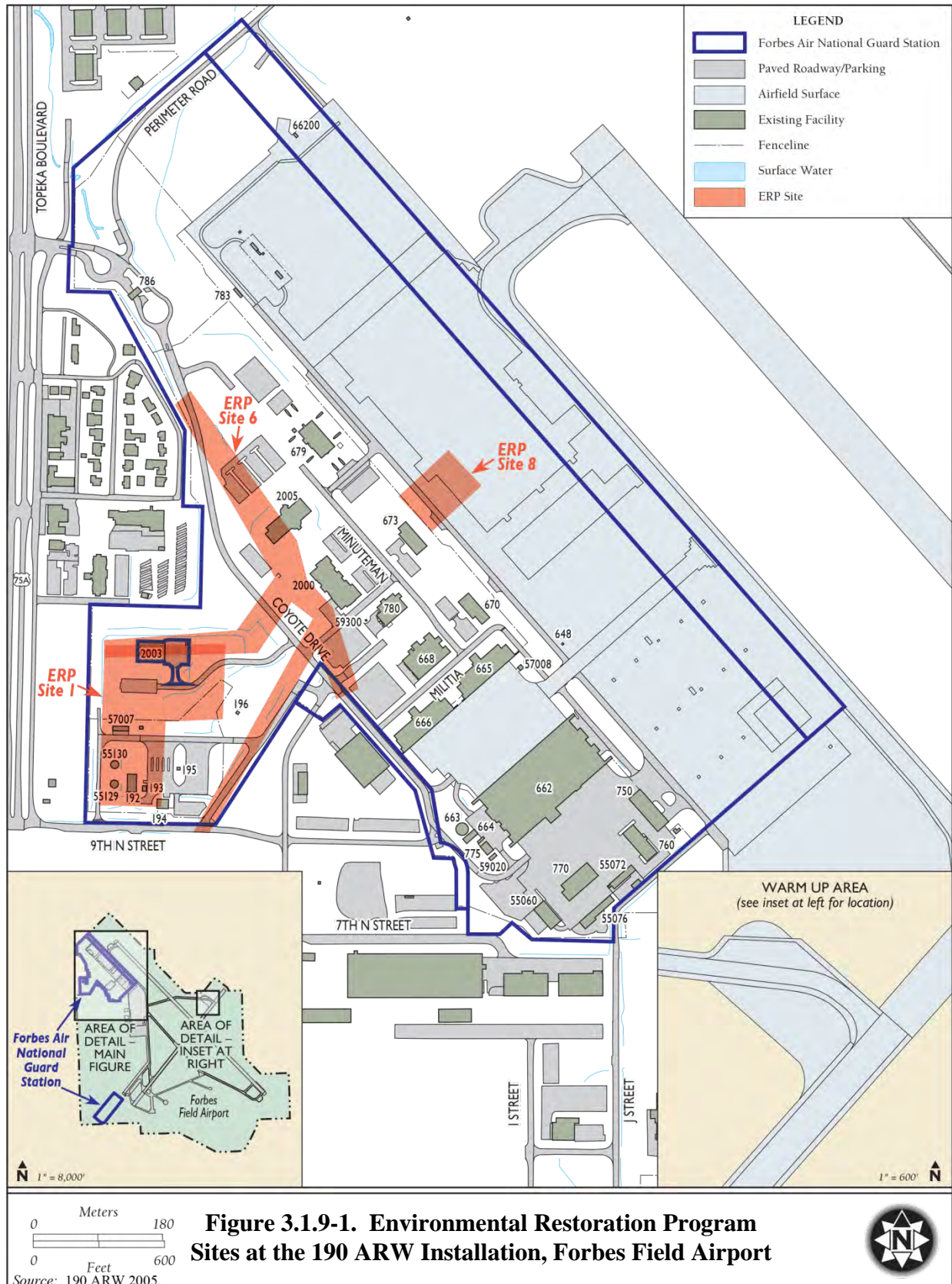
*Source:* 190 ARW 2005.

### 3.1.10 Socioeconomics

#### 3.1.10.1 Population and Employment

##### *Population*

Forbes ANG is located approximately 5 miles south of Topeka in Shawnee County, Kansas. Current population data and estimates for the state of Kansas, Shawnee County, and the city of Topeka are provided in Table 3.1.10-1. From 1990 to 2010, Shawnee County's population increased by 16,958, an increase of approximately 11 percent (U.S. Census Bureau [USCB] 1990a, 2000a, 2010a).



**Table 3.1.10-1. Population Growth within the Vicinity of Forbes ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
Kansas	2,477,574	2,688,418	2,853,118
Shawnee County	160,976	169,871	177,934
City of Topeka	119,883	122,377	127,473

Source: USCB 1990a, 2000a, 2010a.

The 190 ARW currently supports a workforce authorization of 1,242, including 403 full-time and 839 part-time personnel (see Table 2.3-6).

### *Employment and Earnings*

Table 3.1.10-2 presents total labor force and employment rates for Kansas, Shawnee County, and the city of Topeka. Based on 2007-2011 American Community Survey (ACS) 5-year estimates, there were 92,855 persons in the labor force (able to work) and 86,188 employed within Shawnee County, resulting in an unemployment rate of approximately 7 percent. Top employment industries in Shawnee County include 1) educational services, and health care and social assistance; 2) retail; and 3) public administration (USCB 2011a). Principal employers include State of Kansas, Storemont-Vail Healthcare, Topeka School District, Blue Cross Blue Shield, and St. Francis Health Center (City of Topeka 2013b).

**Table 3.1.10-2. Employment Data (2011) within the Vicinity of Forbes ANG**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
Kansas	1,506,400	1,410,911	95,489	6.3
Shawnee County	92,855	86,188	6,667	7.2
City of Topeka	66,056	60,550	5,506	8.3

Note: Employment numbers include individuals in the Armed Forces.

Source: USCB 2011a.

### 3.1.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 31,296 students were enrolled in schools from Kindergarten through Grade 12 in Shawnee County (USCB 2011a).

### 3.1.10.3 Housing

In 2010, the number of housing units in Shawnee County was 79,140 with a vacancy rate of approximately 8 percent (USCB 2010a).



### 3.1.11 Environmental Justice and the Protection of Children

#### 3.1.11.1 Minority and Low-Income Populations

Table 3.1.11-1 displays the minority, low-income, and children under age 18 within the state of Kansas, as well as the city and county within the vicinity of Forbes Field Airport. Approximately 19 percent of the population of Shawnee County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 16 percent for the state of Kansas. The percentage of population living below the poverty level for the state of Kansas (approximately 13 percent) is the lower than Shawnee County (approximately 15 percent) (USCB 2010a).

**Table 3.1.11-1. Population within the Vicinity of Forbes ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
Kansas	2,853,118	462,074	16.2	359,493	12.6	726,939	25.5
Shawnee County	177,934	33,522	18.8	26,156	14.7	44,171	24.8
City of Topeka	127,473	30,301	23.8	24,092	18.9	31,093	24.4

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low-income population numbers are from the 2007-2011 ACS 5-Year Estimates.  
2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010a, 2011a.

Currently there are no populations, including minority or low-income populations, located in the vicinity of Forbes Field Airport within the baseline DNL greater than 65 dB.

#### 3.1.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Shawnee County was approximately 44,171 (approximately 25 percent of the population) (Table 3.1.11-1). The state of Kansas has a slightly higher percentage population of children compared to the county (approximately 26 percent) (USCB 2010a). There are no on-installation housing or facilities for children located at the 190 ARW installation. Currently, there are no Kindergarten through Grade 12 off-installation schools that are exposed to DNL of 65 dB or above.



## **3.2 JOINT BASE MCGUIRE-DIX-LAKEHURST**

JB MDL, home of the 108 WG of the NJ ANG, is located in central New Jersey, spanning more than 20 miles with more than 42,000 contiguous acres. The base is located 18 miles southeast of Trenton, 45 miles east of Philadelphia, 50 miles south of New York City, and 14 miles inland from the Atlantic Ocean.

### **3.2.1 Noise**

To evaluate noise impacts in the vicinity of a military installation, the USAF uses NOISEMAP, a computer program used to model noise exposure in the vicinity of military airfields. Noise contours were generated for JB MDL (McGuire Field) in 2012. For more detailed information on the noise modeling methods, see Appendix A, Section A.1.2.

#### **3.2.1.1 Baseline Operations**

In 2012, JB MDL initiated an update to their 2009 McGuire AFB Air Installation Compatible Use Zone (AICUZ) study that included noise modeling for current McGuire Field aircraft operations. The aircraft operations included in the 2012 NOISEMAP update form the baseline for this analysis.

Based on aircraft operations data validated in March 2013, approximately 62,686 total aircraft operations occurred at McGuire Field during the 12-month period ending October 2011 (JB MDL 2013a). An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. Table 3.2.1-1 summarizes the frequency of aircraft operations for McGuire Field based on information provided by base staff, flying organizations, and air traffic control personnel. The majority of active USAF and ANG flying units currently at McGuire Field operate the C-17, KC-10, KC-135, and the C-32 aircraft. Although the number of aircraft operations at an installation varies from day to day, for McGuire Field, operations were calculated for an AAD, meaning that yearly operations were averaged across all 365 days of the year. Table 3.2.1-1 reflects a total of approximately 172 aircraft operations on an AAD (62,686 divided by 365 days). Approximately 34 percent of the total operations at McGuire Field occur during environmental night (10:00 p.m. through 7:00 a.m.).

Based on the 2012 baseline data, the 108 WG KC-135 aircraft flew a total of 8,340 annual airfield operations, or an average of 23 airfield operations a day. Approximately 20 percent of the total KC-135 operations occur during environmental night. Approximately 13 percent of total operations at McGuire Field are accomplished by the 108 ARW KC-135 aircraft.

**Table 3.2.1-1. Current McGuire Field Annual Aircraft Operations**

<i>Aircraft</i>	<b>DEPARTURES</b>		<b>ARRIVALS</b>		<b>TOTAL<sup>1</sup></b>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-135	3,348	822	3,308	862	6,656	1,684	8,340
Other Aircraft <sup>3</sup>	18,842	8,316	15,895	11,293	34,737	19,609	54,346
<b>Total</b>	<b>22,190</b>	<b>9,138</b>	<b>19,203</b>	<b>12,155</b>	<b>41,393</b>	<b>21,293</b>	<b>62,686</b>

Notes: 1<sup>1</sup> Includes Closed Patterns (which count as two airfield operations).

2. Night –Between 10 p.m. and 7 a.m. for environmental night.

3. Other based military and civilian aircraft, and transient aircraft (multiple type aircraft); example aircraft include: KC-10, C-17, and C-32.

Source: JB MDL 2013a, Lamar 2013.

### 3.2.1.2 Runway and Flight Profiles

McGuire Field aircraft use straight in approaches, overhead approaches, IFR or radar closed patterns, and VFR closed patterns along with re-entry VFR patterns as the basic flight patterns for training, local arrival, and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise* (JB MDL 2013a).

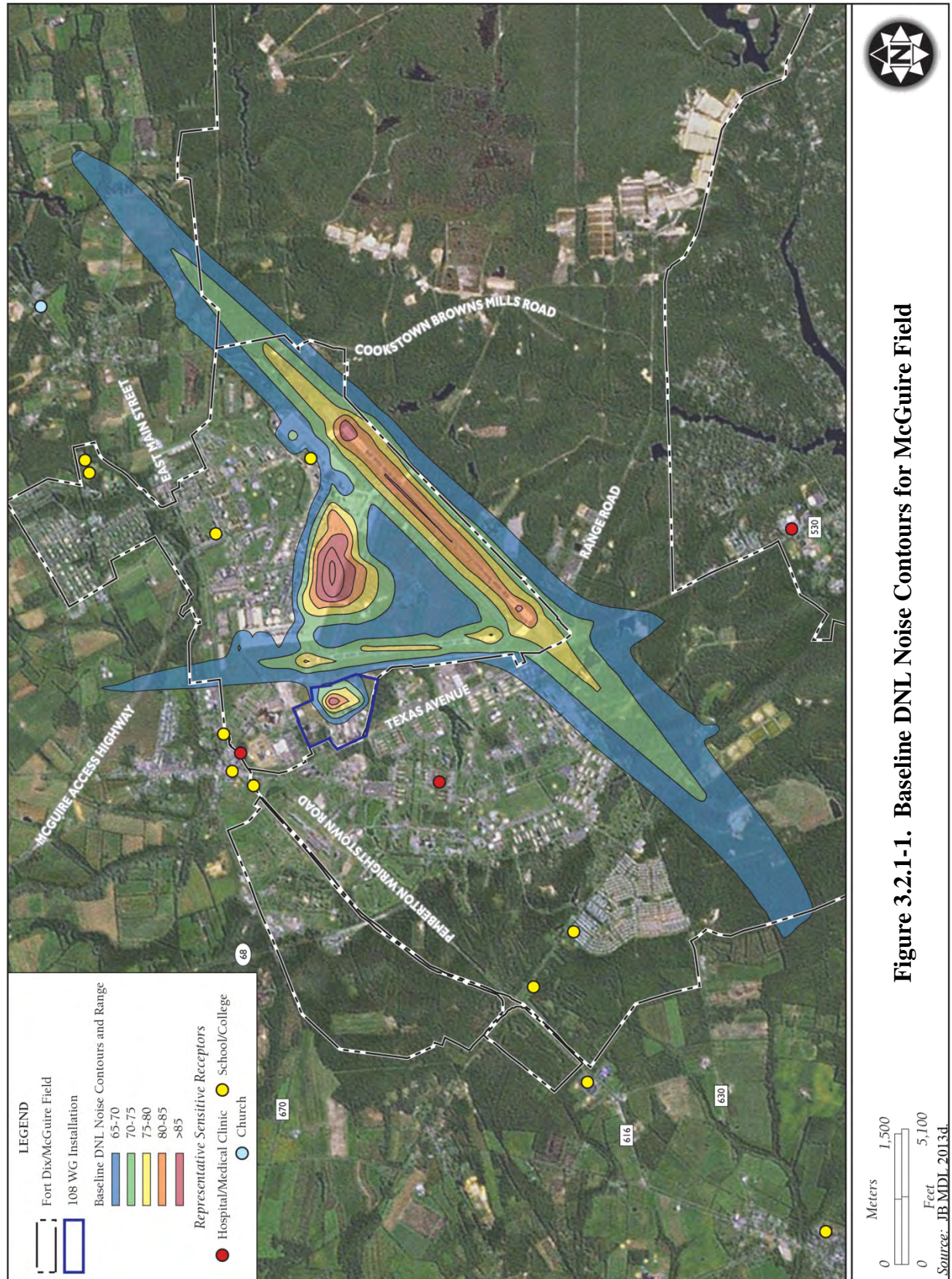
### 3.2.1.3 Existing Noise Environment

Noise contours developed for the baseline conditions at JB MDL are shown in Figure 3.2.1-1. The acreage within each DNL contour on and off JB MDL property is shown in Table 3.2.1-2. Approximately 3,561 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.2.7, *Land Use*.

**Table 3.2.1-2. Acres within Baseline Noise Contours, McGuire Field**

<i>Noise Level (dB)</i>	<i>On-Base (acres)</i>	<i>Off-Base (acres)</i>	<i>Total (acres)</i>
65-70	1,375	311	1,686
70-75	1,186	21	1,207
75-80	370	0	370
80-85	222	0	222
Greater than 85	76	0	76
<b>Total</b>	<b>3,229</b>	<b>332</b>	<b>3,561</b>

Note: dB = decibel



### *Potential Hearing Loss*

As shown in Table 3.2.1-2, there is no property off the JB MDL that falls within the baseline 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### **3.2.1.4 Joint Base McGuire-Dix-Lakehurst Noise Abatement Procedures**

JB MDL has placed certain restrictions on flying activities that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations. Local noise abatement procedures are published in AFI 11-2KC135 V3, *108 ARW Supplement* (2009).

For McGuire Field, noise abatement procedures include, but are not limited to, restrictions on rolling and intersection take-offs, and maximum gross weights for practice landings (i.e., closed patterns). Additional McGuire Field local restrictions provide additional protection in housing areas by requiring aircraft to avoid overflight of the housing areas by 1,600 feet MSL from 6:00 a.m. to 10:00 p.m. and restricting aircraft overflight between the hours of 10:00 p.m. and 7:00 a.m., and to avoid overflight of Fort Dix housing, McGuire AFB Clinic, and Deborah Hospital at all times (JB MDL 2009).

#### **3.2.1.5 Joint Base McGuire-Dix-Lakehurst Noise Complaints Procedures**

Currently, JB MDL receives noise complaints through the 87<sup>th</sup> Air Base Wing Public Affairs office. In 2012, McGuire Field received a total of nine noise complaints. Each complaint was routed through JB MDL Radar Approach Control to determine what, if any, military aircraft were in the vicinity of the noise complainant. If it is determined that a JB MDL aircraft was in the vicinity of the complainant, the complaint is forwarded to the appropriate operations flying groups for response and appropriate action (McGee 2013a).

### **3.2.2 Air Quality**

#### **3.2.2.1 Regulatory Setting**

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The New Jersey Department of Environmental Protection (NJDEP) is the agency responsible for the regulation of air quality within the state of New Jersey. The state of New Jersey regulates air quality through the New Jersey Administrative Code, Title 7:27A through 7:27D. The state of New Jersey has adopted additional ambient air quality standards that apply within the state. The NAAQS and state AAQS are summarized in Table 3.2.2-1.



**Table 3.2.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	NATIONAL STANDARDS <sup>a</sup>		NEW JERSEY STANDARDS	
		<i>Primary</i> <sup>b,c</sup>	<i>Secondary</i> <sup>b,d</sup>	<i>Primary</i> <sup>b,c</sup>	<i>Secondary</i> <sup>b,d</sup>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary	—	—
	1-hour	—	—	0.12 ppm (235 µg/m <sup>3</sup> )	0.08 ppm (160 µg/m <sup>3</sup> )
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—	9 ppm (10 mg/m <sup>3</sup> )	Same as primary
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—	35 ppm (40 mg/m <sup>3</sup> )	Same as primary
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—	—	—
SO <sub>2</sub>	Annual	—	—	0.03 ppm (80 µg/m <sup>3</sup> )	0.02 ppm (60 µg/m <sup>3</sup> )
	24-hour	—	—	0.14 ppm (365 µg/m <sup>3</sup> )	0.1 ppm (260 µg/m <sup>3</sup> )
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—	—	—
Total Suspended Particulate	Annual	—	—	75 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>
	24-hour	—	—	260 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>10</sub>	Annual	—	Same as primary	—	—
	24-hour	150 µg/m <sup>3</sup>	Same as primary	—	—
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	—	—
	24-hour	35 µg/m <sup>3</sup>	Same as primary	—	—
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary	1.5 µg/m <sup>3</sup>	Same as primary

Notes: a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

Source: USEPA 2012.

JB MDL is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. The USEPA has classified the Philadelphia-Wilmington-Atlantic City area of the states of Pennsylvania, Delaware, and New Jersey as nonattainment for the O<sub>3</sub> (marginal nonattainment) NAAQS, and a maintenance area for PM<sub>2.5</sub> and CO. The region is designated attainment/unclassified area for all other criteria pollutants. The Proposed Action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (oxides of nitrogen [NO<sub>x</sub>] and volatile organic compounds [VOCs]) is 100 tpy, and the *de minimis* emission thresholds for PM<sub>2.5</sub> and CO emissions are also 100 tpy.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

#### 3.2.2.2 Climate and Meteorology

JB MDL is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. The climate in the central portion of New Jersey is influenced by its vegetation, with moderation due to its proximity to the Atlantic Ocean. Scrub pine and oak forests dominate the interior southern portion of New Jersey, hence the name, Pine Barrens. Sandy soils, which are porous and not very fertile, have a major effect on the climate of this region. On clear nights, solar radiation absorbed during the day is quickly radiated back into space, resulting in surprisingly low minimum temperatures. The porous soil permits any precipitation to rapidly infiltrate and leave surfaces quite dry. Drier conditions allow for a wider range between the daily maximum and minimum temperatures, and make the area vulnerable to forest fires.

The warmest month of the year is July with an average maximum temperature of 87.10°F, while the coldest month of the year is January with an average minimum temperature of 22.50°F. Temperature variations between night and day tend to be moderate during summer with a difference that can reach 24°F, and moderate during winter with an average difference of 20°F. The annual average precipitation at Fort Dix is 47.12 inches. Rainfall is fairly evenly distributed throughout the year. The wettest month of the year is August with an average rainfall of 5.16 inches (Northeast Regional Climate Center 2013a). Prevailing winds in New Jersey are from the southwest in summer and from the northwest in winter.

### 3.2.2.3 Regional and Local Air Pollutant Sources

The 108 WG of the NJ ANG is based at McGuire Field in New Jersey. The area surrounding JB MDL is a mix of agricultural uses, developed areas, and undeveloped areas and includes Fort Dix to the west.

The USEPA's National Emissions Inventory includes data for the year 2008 for Burlington and Ocean counties. Table 3.2.2-2 summarizes the regional emissions (stationary, area-wide, and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.2.2-2. Regional Emissions for Burlington and Ocean Counties, New Jersey**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions – Burlington County</b>						
Stationary Sources	6,767	1,882	2,935	500	1,010	940
Area-Wide Sources	12,110	24,564	311	73	4,191	1,066
Mobile Sources	60,287	6,056	9,594	122	592	487
<b>Total</b>	<b>79,164</b>	<b>32,502</b>	<b>12,840</b>	<b>695</b>	<b>5,793</b>	<b>2,493</b>
<b>Regional Emissions – Ocean County</b>						
Stationary Sources	5,078	1,277	2,881	582	883	666
Area-Wide Sources	6,369	19,656	339	36	2,740	583
Mobile Sources	70,288	12,765	8,415	109	656	516
<b>Total</b>	<b>81,735</b>	<b>33,698</b>	<b>11,635</b>	<b>727</b>	<b>4,279</b>	<b>1,765</b>

*Notes:* Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant  
 Numbers may not add precisely due to rounding.  
 CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.2.2.4 Baseline Air Quality

Representative background air monitoring data for the 108 WG for the period 2008-2012 are shown in Table 3.2.2-3. The closest monitoring stations to JB MDL are located in Ocean County (Jackson Township), Camden County (Camden and Winslow), Trenton, and Burlington County. Values measured in more developed areas such as Camden and Trenton are likely to be conservative due to the amount of development in those areas.

As shown in Table 3.2.2-3, O<sub>3</sub> exceedances have been measured in the developed areas surrounding JB MDL during the recent 5-year period. The data show that the area did not experience violations of other NAAQS.



**Table 3.2.2-3. Ambient Air Monitoring Data for the JB MDL Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.100	0.085	0.094	0.094	0.09
Days above federal standard (0.075 ppm)	15	2	16	11	9
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	36.2	35.8	36.5	33.8	27.7
Days above federal standard (35 µg/m <sup>3</sup> )	1	0	1	0	0
Annual Average value (µg/m <sup>3</sup> )	11.1	9.3	9.5	10.3	8.8
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	56	81	86	77	67
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	3.7	2.5	2.7	0.7	2.2
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.8	1.4	1.9	0.3	1.7
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.090	0.045	0.046	NA	0.051
98 <sup>th</sup> Percentile (ppm)	0.058	0.040	0.040	NA	0.043
Days above federal standard (0.100 ppm)	0	0	0	NA	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.040	0.028	0.016	NA	0.017
99 <sup>th</sup> Percentile (ppm)	0.025	0.020	0.010	NA	0.015
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	NA	0
Peak 24-hour value (ppm)	0.013	0.015	0.006	NA	0.008

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.2.2.5 108<sup>th</sup> Wing Emissions

The 108 WG currently flies and maintains eight KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 108 WG include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

Emissions for the 108 WG have been quantified in the *Final 2009 Air Emissions Inventory* (108 WG 2011a). The inventory evaluated the emissions from the 108 WG to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 25 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, 100 tpy for all other criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs.

In December 2009, the base was issued an air permit from the NJDEP that contains operational limits such that its potential emissions are restricted below the Title V major source thresholds. While the 2009 Air Emissions Inventory also contains fugitive emission calculations, it demonstrates that total base-wide potential emissions from stationary sources are below the major source thresholds.

Stationary source emissions at the 108 WG include emissions from natural gas-fired heating units, emergency generators and pumps, fuel tanks, fuel cell maintenance, and various minor sources such as solvent use, deicing, and welding. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 108 WG considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #2, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3.7 utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.2.2-4.

**Table 3.2.2-4. 108 WG Baseline Emissions at JB MDL**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	3.21	49.03	83.34	7.43	0.39	0.39	20,659
AGE	0.01	0.01	0.09	0.00	0.00	0.00	2,157
Engine Testing	0.14	2.01	0.55	0.09	0.01	0.01	239
POVs	5.12	110.72	5.20	0.07	0.21	0.12	3,543
<b>Total Baseline Emissions</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>7.59</b>	<b>0.61</b>	<b>0.53</b>	<b>26,597</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle.

*Source:* 108 WG 2011a.

### **3.2.3 Safety**

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding McGuire Field.

#### **3.2.3.1 Ground Safety**

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 108 WG are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by AFOSH requirements. The USAF active duty host at JB MDL provides fire, crash, rescue, and structural fire protection for the McGuire Field installation, including the 108 WG, and its aircraft. Aircraft Rescue Fire Fighting (ARFF) services at McGuire Field are available on a 24-hour basis. Upon notification of an in-flight or ground emergency, the crash and rescue services personnel would coordinate emergency services. ARFF equipment and personnel at McGuire Field meet USAF requirements (JB MDL 2013b).

##### *Accident Potential Zone/Runway Protection Zone*

APZs are established to delineate recommended surrounding land uses for the protection of people and property on the ground, as described in Appendix A, Section A.3. At McGuire Field, airfield operations currently has waivers for two buildings, 1931 and 5650, which violate the CZs for Runways 24 and 36 respectively. Both are scheduled for demolition. Details of development and land use in the McGuire Field vicinity are included in Section 3.2.7, *Land Use*.

##### *Explosive Safety*

The 108 WG uses a small range of munitions required for performance of their mission. The existing munitions storage capabilities on JB MDL meet the requirement for small arms deployment/training ammunition and other munitions required by the 108 WG.

##### *Anti-Terrorism/Force Protection*

Many of the 108 WG military facilities at JB MDL were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities

are modified, the New Jersey 108 WG would incorporate these standards to the maximum extent practicable.

### 3.2.3.2 Flight Safety

#### *Flight Safety Procedures*

Aircraft flight operations from McGuire Field are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures* 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, air refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

#### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight-hours (AFSEC 2012). There have been no Class A mishaps involving 108 WG aircraft at McGuire Field. The aircrew members at the 108 WG are highly experienced and have accumulated over 270,000 accident free hours (JB MDL 2013b).

#### *Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife-aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 108 WG has an effective, on-going BASH program through which information and assistance is freely shared between airfield users, the McGuire Field staff, and the local air traffic controllers. Serious BASH-related accidents within the immediate JB MDL area are unusual and have never resulted in a Class A mishap (JB MDL 2013c). JB MDL recorded a total of 94 minor BASH incidents and one deer mishap from 2008 to 2013. From this total, the 108 WG experienced 22, for an average of fewer than 2 per year (JB MDL 2013c).

### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Although fuel jettisoning is not practiced, airbases must establish jettison areas and procedures to minimize the impact of fuel jettisoning should it occur during an emergency situation. Ideally, jettison areas are established at altitudes above 20,000 feet, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources.

The primary emergency fuel jettison area for the 108 WG is the PREPI (charted, mandatory overwater reporting point) overwater intersection, 62 miles southeast of JB MDL. Aircrews enter a holding pattern east of PREPI intersection, flying 7-mile legs, with right hand turns, after notifying the appropriate Air Traffic Control facility of intentions to jettison fuel. Aircrews will request an altitude as high as practical, consistent with the nature of the in-flight emergency; however, 20,000 feet AGL or above is preferred (JB MDL 2009).

### **3.2.4 Soils and Water**

#### **3.2.4.1 Soils**

This area of New Jersey is within the Coastal Plain Province, a nearly level to rolling, dissected coastal plain that has been subjected to episodes of rising and falling sea levels. During low sea levels, eroding streams have dissected the area, leaving a series of terraces across the landscape (USDA 2006). The 108 WG installation is located on improved land, and relief ranges from 70 to 90 feet above MSL (JB MDL 2011).

The NRCS Soil Survey for Burlington County, New Jersey identifies eight individual soil types at the 108 WG installation. The following four soil types are located within the project study area:

*Adelphia-Urban land complex, 0 to 5 percent slopes:* This soil consists of strongly intermingled Urban land and Adelphia soil. Urban land consists of soil from cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is considered somewhat limited due to shrink-swell potential and depth to saturated zone (NRCS 2013b). Approximately 54 percent of the installation is composed of this soil type.

*Holmdel sandy loam, 0 to 2 percent slopes:* This soil is typically found on flats from loamy marine deposits. The rating class for building site development is considered somewhat limited

due to depth to saturated zone. In addition, this soil type is designated as Prime Farmland (NRCS 2013b). Approximately 4 percent of the installation is composed of this soil type.

*Sassafras sandy loam, 2 to 5 percent slopes:* This soil is typically found on knolls and low hills from loamy or gravelly marine deposits. There are no known limitations to site development associated with this soil type. In addition, this soil type is designated as Prime Farmland (NRCS 2013b). Approximately 18 percent of the installation is composed of this soil type.

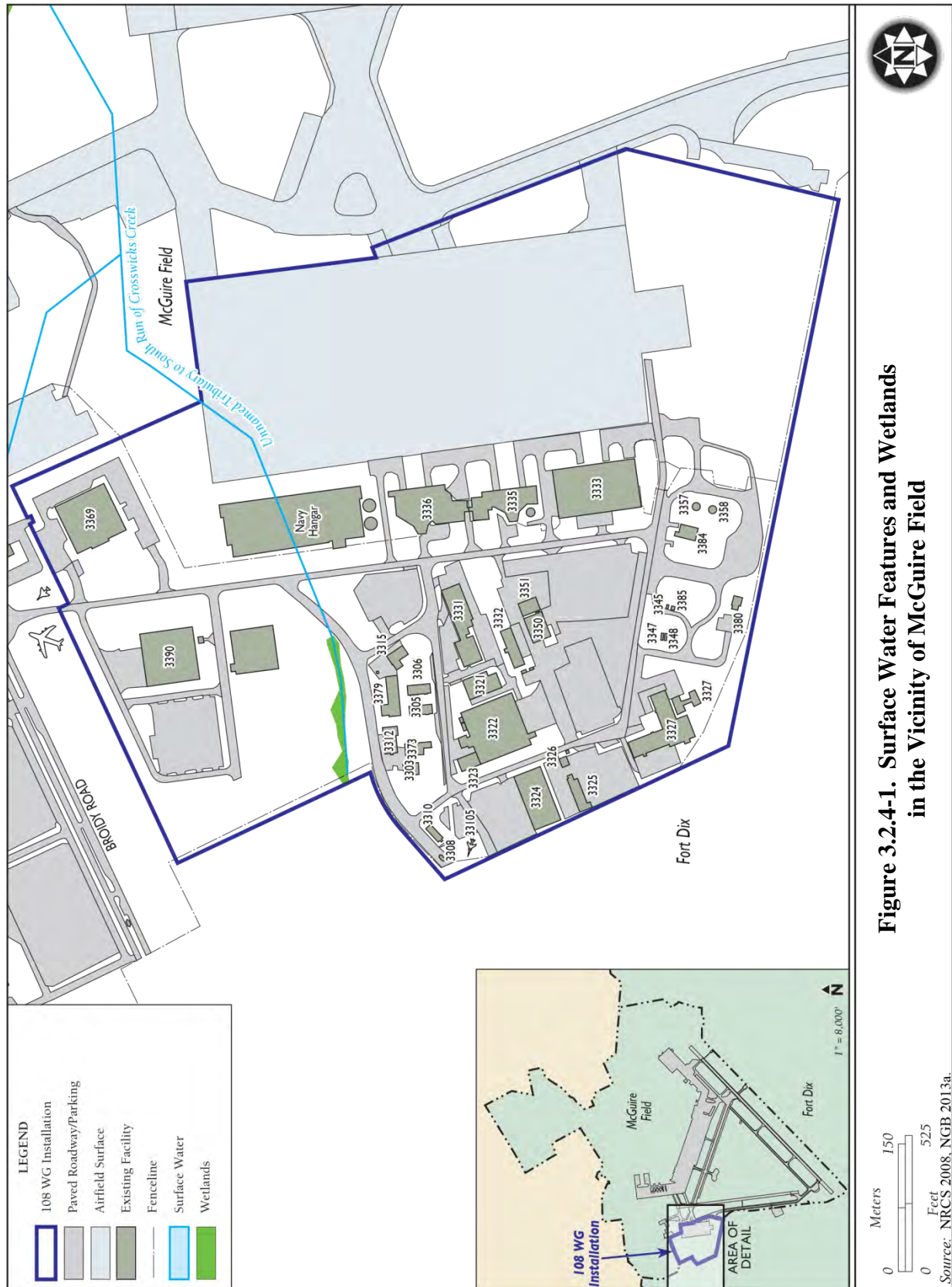
*Udorthents, wet substratum, 0 to 8 percent slopes:* This soil is found in areas that have been excavated and regraded or that have been filled with soil material and graded. This soil type is typically used for urban development or landfills. The suitability of the soils as a site for development varies. The rating class for building site development is not rated for this soil type (NRCS 2013b). Approximately 5 percent of the installation is composed of this soil type.

The remaining 19 percent is comprised of soil types that would not be affected.

#### 3.2.4.2 Surface Water

The 108 WG is located within the Middle Delaware-Musconetcong Watershed that encompasses over 3,480 square miles across New Jersey and Pennsylvania (USEPA 2013c). The Delaware is the longest un-dammed river in the U.S., extending 330 miles from the confluence of its east and west branches at Hancock, New York to the mouth of the Delaware Bay where it meets the Atlantic Ocean. Three-quarters of the Delaware River is now included in the National Wild and Scenic Rivers System. Sections of the Maurice River and the Musconetcong River in New Jersey also have been included in the national system (Delaware River Basin Commission 2013).

Surface water features within the vicinity of the JB MDL include Assiscunk Creek, Crosswicks Creek, Manapqua Brook, North Ruckles, Rancocas Creek, Ridgeway Brook, and the Toms River which drains southeast into Barnegat Bay (Figure 3.2.4-1). Three of these creeks are tributaries to the Delaware River: Assiscunk Creek, Crosswicks Creek, and Rancocas Creek. The western portion of the installation, including McGuire Field, is in the Rancocas Creek watershed. Smaller streams include Harris Branch, Elisha Branch, Paint Branch, and a number of unnamed tributaries (87<sup>th</sup> Civil Engineering Squadron 2012).





There are five stormwater outfalls on McGuire Field, Drainage Basins 1 through 5. Drainage basins containing industrial activities include Basins 1, 2, and 3. Drainage Basin 1 directs effluent into the South Run of Crosswicks Creek, while Drainage Basin 2 directs effluent to Jacks Run. Drainage Basin 3 discharges into Larkins Run of the North Branch of Rancocas Creek. Drainage Basin 4 directly discharges stormwater to Drainage Basin 5, which in turn discharges into the North Run of the Crosswicks Creek. The outfalls associated with industrial activity are regulated under a New Jersey Basic Industrial General Stormwater Permit (NJ0088315). The permit is administered by the NJDEP under the auspice of the USEPA (USAF School of Aerospace Medicine 2010).

#### 3.2.4.3 Groundwater

Groundwater in this area is part of the Northern Atlantic Coastal Plain aquifer system consisting of sedimentary deposits that range in age from Early Cretaceous to Holocene (U.S. Geological Survey [USGS] 1995a). The installation lies within the Kirkwood-Cohansey Aquifer present throughout the New Jersey coastal plain and covers approximately 3,000 square miles. The Cohansey Formation is mostly sand with minor lenses of silt, clay, and gravel. The Kirkwood Formation contains both sand and clay beds. The Kirkwood-Chansey water table is highly permeable due to the dominance of well-sorted medium- to coarse-grained sand (New Jersey Geological Survey 2009). Because of the high water table and permeable soils, the underlying groundwater resources are particularly sensitive to contamination making groundwater pollution prevention an important issue on the installation (87<sup>th</sup> Civil Engineering Squadron 2012).

Immediately below the Cohansey Formation is the Kirkwood Formation. Together, these two aquifers are estimated to contain as much as 17 trillion gallons of water. Underlying the Cohansey and Kirkwood Formations is the Potomac-Raritan-Magothy Formation. The installation's largest capacity well taps into the Potomac-Raritan-Magothy Aquifer at about 1,580 feet (87<sup>th</sup> Civil Engineering Squadron 2012).

#### 3.2.4.4 Floodplains

Per the FEMA Flood Insurance Rate Map for Burlington County, New Jersey, the 108 WG installation falls within an unmapped area, and no FEMA floodplains have been delineated within this area (FEMA 2013).

A floodplain study was prepared by the U.S. Army Corps of Engineers (USACE) for the Lakehurst area of JB MDL in 1989 and was later revised in 1990. Peak discharges for flood levels that occur with average intervals of 10, 50, 100, and 500 years were determined for Ridgeway Branch, North Ruckles Branch, Manapaqua Brook, Paint Branch, and Harris Branch.

Flood Insurance Studies have also been prepared by FEMA for the Township of Manchester and the Borough of Lakehurst. No floodplain studies have been conducted on the Fort Dix or McGuire areas of JB MDL (87<sup>th</sup> Civil Engineering Squadron 2012).

### **3.2.5 Biological Resources**

#### **3.2.5.1 Vegetation**

The 108 WG installation occurs within the Eastern Broadleaf Forest (Oceanic) Province. Vegetation in this region typically is characterized by a winter deciduous forest dominated by tall broadleaf trees (Bailey 1995). Within this region, the 108 WG installation lies within the Pinelands, a heavily forested area characterized by a mix of pitch pine (*Pinus rigida*), Virginia pine (*Pinus virginiana*), and short leaf pine (*Pinus echinata*). The majority of the JB MDL (69 percent) is forested with pine/oak or oak/pine forests with dense deciduous stands of red maple, sweet gum, and black gum in the wetland forests. However, the majority of McGuire Field and the 108 WG installation is either developed or comprised of turf and landscaped areas (87<sup>th</sup> Civil Engineering Squadron 2012, Headquarters AMC 2008).

#### **3.2.5.2 Wildlife**

Since 69 percent of JB MDL is forested, and the majority of the 108 WG installation is developed, wildlife present within the vicinity includes a mix of species highly adapted to developed and disturbed areas as well as species typical of native forests in the area. Common mammal species found on JB MDL include white-tailed deer, woodchuck (*Marmota marmox*), beaver (*Castor canadensis*), eastern cottontail rabbit (*Sylvilagus floridanus*), red squirrel (*Tamiasciurus hudsonicus*), white-footed mouse (*Peromyscus leucopus*), and meadow vole (*Microtus pennsylvanicus*) (87<sup>th</sup> Civil Engineering Squadron 2012, Headquarters AMC 2008).

Common reptilian and amphibian species observed within the vicinity of the installation include the milk snake (*Lampropeltis* spp.), northern black racer (*Coluber constrictor*), northern fence lizard (*Sceloporus undulates hyacinthus*), painted turtle (*Chrysemys picta*), American toad (*Bufo americanus*), Fowler's toad (*Bufo woodhousei fowleri*), and northern leopard frog (*Rana pipiens sphenoccephala*) (Headquarters AMC 2008).

The 108 WG installation is located within the Atlantic Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found within the 108 WG installation or its vicinity are protected under the MBTA. Grassland areas on the installation, as well as those grassland areas near the airfield, provide habitat for birds such as the Upland Sandpiper (*Bartramia longicauda*), Grasshopper Sparrow (*Ammodramus savannarum*), and Savannah Sparrow (*Passerculus sandwichensis*). The ecotone between grassland and

forested ecosystems provides excellent habitat for bird species such as the Gray Catbird (*Dumetella carolinensis*), Yellow Warbler (*Dendroica petechia*), Northern Cardinal (*Cardinalis cardinalis*), Indigo Bunting (*Passerina cyanea*), Rufous-sided Towhee (*Pipilo erythrophthalmus*), Song Sparrow (*Melospiza melodia*), Brown-headed Cowbird (*Molothrus ater*), and American Goldfinch (*Carduelis tristis*). Common birds found in the wetlands areas include the Great Blue Heron (*Ardea herodias*), Northern Rough-winged Willow Flycatcher (*Empidonax traillii*), Eastern Kingbird (*Tyrannus tyrannus*), Cedar Waxwing (*Bombycilla cedrorum*), and Red-winged Blackbird (*Agelaius phoeniceus*). Common birds that could be found in the upland forest areas include the Downy Woodpecker (*Picoides pubescens*), Eastern Wood-pewee (*Contopus virens*), Carolina Chickadee (*Parus carolinensis*), Pine Warbler (*Dendroica pinus*) and Chipping Sparrow (*Spizella passerina*). Common raptor species that may be found include the American Kestrel (*Falco sparverius*), Red-tailed Hawk (*Buteo jamaicensis*), Great Horned Owl (*Bubo virginianus*), and the Turkey Vulture (*Cathartes aura*) (Headquarters AMC 2008).

### 3.2.5.3 Special Status Species

Appendix E lists federally threatened, endangered, candidate, and state listed species observed or potentially occurring in the vicinity of JB MDL. No federally listed species have been observed on McGuire Field or the 108 WG installation. Three federally listed plant species and one candidate plant species have been observed within the vicinity of JB MDL, but have not been observed within the 108 WG installation. An additional 30 state listed species have been observed on JB MDL, while 6 state listed species have been observed within McGuire Field (American Kestrel, Grasshopper Sparrow, Northern Harrier, Pie-billed Grebe, Savannah Sparrow, and Upland Sandpiper). There is no critical habitat located on JB MDL (87th Civil Engineer Squadron 2012, Air Mobility Command 2008, New Jersey Department of Environmental Protection 2013).

### 3.2.5.4 Wetlands

Approximately 21 percent (8,791 acres) of JB MDL is comprised of emergent, scrub-shrub, and forested wetlands (Figure 3.2.4-1). Approximately 900 acres occur at Lakehurst, 238 acres occur at McGuire, and 7,653 acres occur at Dix (87th Civil Engineer Squadron 2012). There are no wetlands located within the vicinity of the construction projects under Alternative #2.

### **3.2.6 Cultural Resources**

#### **3.2.6.1 Archaeological Resources**

A survey of cultural resources including archaeological resources and pre-Cold War era buildings and structures was completed in 1995 for McGuire AFB (now McGuire Field) (Headquarters AMC 1995). This survey included all areas within the 1995 boundary of McGuire AFB and all off-base facilities, except for a 20-acre parcel of leased land (the Boeing Michigan Aerospace Research Center [BOMARC] missile site at Fort Dix). Areas that were highly disturbed from construction or ERP sites were excluded from the survey and five previously designated areas of archaeological sensitivity were included based on geomorphology, the history of land disturbance on base, vegetation, and prehistoric and historic site distribution patterns on surrounding lands. A sixth area of archaeological sensitivity was added in the North Run area of the base due to the potential for buried prehistoric remains in undisturbed alluvial deposits and on locations of historic buildings on historic maps (Headquarters AMC 1995). This survey resulted in the recordation of 11 historic archaeological sites. Following further testing in 1998, three of these sites (site numbers 28BU458, 28BU459, and 28BU473) were determined eligible for listing in the NRHP. The three sites include two mid-eighteenth to early-nineteenth century agricultural households associated with a nearby mill site, which was reported but not identified; and one mid-eighteenth to early nineteenth century domestic site associated with the historic village of Pointville. The remaining eight sites were determined not eligible for listing in the NRHP (Duryee 2013, 87<sup>th</sup> Civil Engineering Squadron 2013, Headquarters AMC 2008).

#### **3.2.6.2 Architectural Resources**

The 1995 survey of McGuire AFB included an inventory and NRHP evaluation of all buildings and structures constructed before 1947, the BOMARC missile complex at Fort Dix, and the 1956 Semi-Automatic Ground Environment complex. Both the Semi-Automatic Ground Environment complex and the BOMARC site were recommended as NRHP-eligible Cold War era resources under the criteria for exceptional significance (Criterion Consideration G). Additionally, as a result of this survey, 18 World War II era temporary structures were found to be eligible for listing in the NRHP. The structures are considered eligible; however, per the 1986 Memorandum of Agreement between the DOD, the Advisory Council on Historic Preservation, and the National Conference of SHPOs, these structures could be demolished without further Section 106 review. All other buildings were found not eligible for listing in the NRHP (Headquarters AMC 2008).

A follow-up survey in 1996 included all Cold War era buildings, which were all less than 50 years old at the time. No buildings were recommended eligible to the NRHP under criteria for exceptional significance (Criterion Consideration G) (Headquarters AMC 1995). In 2013, a

survey was completed for pre-1967 resources that have since become 50 years old. Hangar 3322, built in 1957, was evaluated for NRHP eligibility during this survey. The results of the inventory indicated that Hangar 3322 is not eligible for listing in the NRHP (JB MDL 2013d).

### **3.2.6.3 Traditional Resources**

McGuire Field contains no known traditional resources; however, three federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified: Delaware Nation, Delaware Tribe of Indians, and Stockbridge-Munsee Community. JB MDL has completed consultation with the Delaware Nation and Delaware Tribe of Indians, who were identified as potentially having an interest in JB MDL. In the past, the Stockbridge-Munsee Community was invited by JB MDL to participate in government-to-government consultation, but declined interest in being further consulted (87<sup>th</sup> Civil Engineering Squadron 2013, Duryee 2013).

### **3.2.7 Land Use**

JB MDL is located in central Burlington County, adjacent to and southeast of the Borough of Wrightstown and within New Hanover Township. Land use within those portions of Burlington County adjacent to McGuire Field is a mix of residential and commercial to the north and south, with several open and agricultural areas adjacent to the western boundary of the installation. The land use in Ocean County northeast of JB MDL is similar to the existing land use in Burlington County that is north of the airfield (Figure 3.2.7-1).

Aircraft noise and potential hazards from aircraft operations at McGuire Field currently are incompatible with some off-installation land use. Since JB MDL surrounds McGuire Field to the east, south, and west, the impact of airfield activities on adjacent communities is limited. Higher DNL contours and APZs associated with the runways at McGuire Field do not extend off installation. (Detailed descriptions of APZs can be found in Section A.1.3 of Appendix A.)

An updated noise study in support of the AICUZ program was completed for JB MDL in 2013 and the JB MDL Joint Land Use Study was completed in 2009. These documents identify incompatible land uses and supports compatible land use planning in the vicinity of JB MDL. Both Burlington and Ocean Counties have supported the AICUZ and Joint Land Use Study programs in their on-going planning and zoning decisions to reduce land use conflicts and ensure future land uses are compatible (JB MDL 2013a, DoD 2009b).

Currently, aircraft noise from JB MDL exposes approximately 332 acres of off-JB MDL areas of land zoned as Recreational, Agricultural, Commercial, Residential, Open Space, and Other to

noise levels between 65 dB and 75 dB DNL. Figure 3.2.7-1 shows an overlay of the baseline DNL contours onto a map displaying the existing land use in the vicinity of JB MDL.

### **3.2.8 Infrastructure and Transportation**

#### **3.2.8.1 Potable Water System**

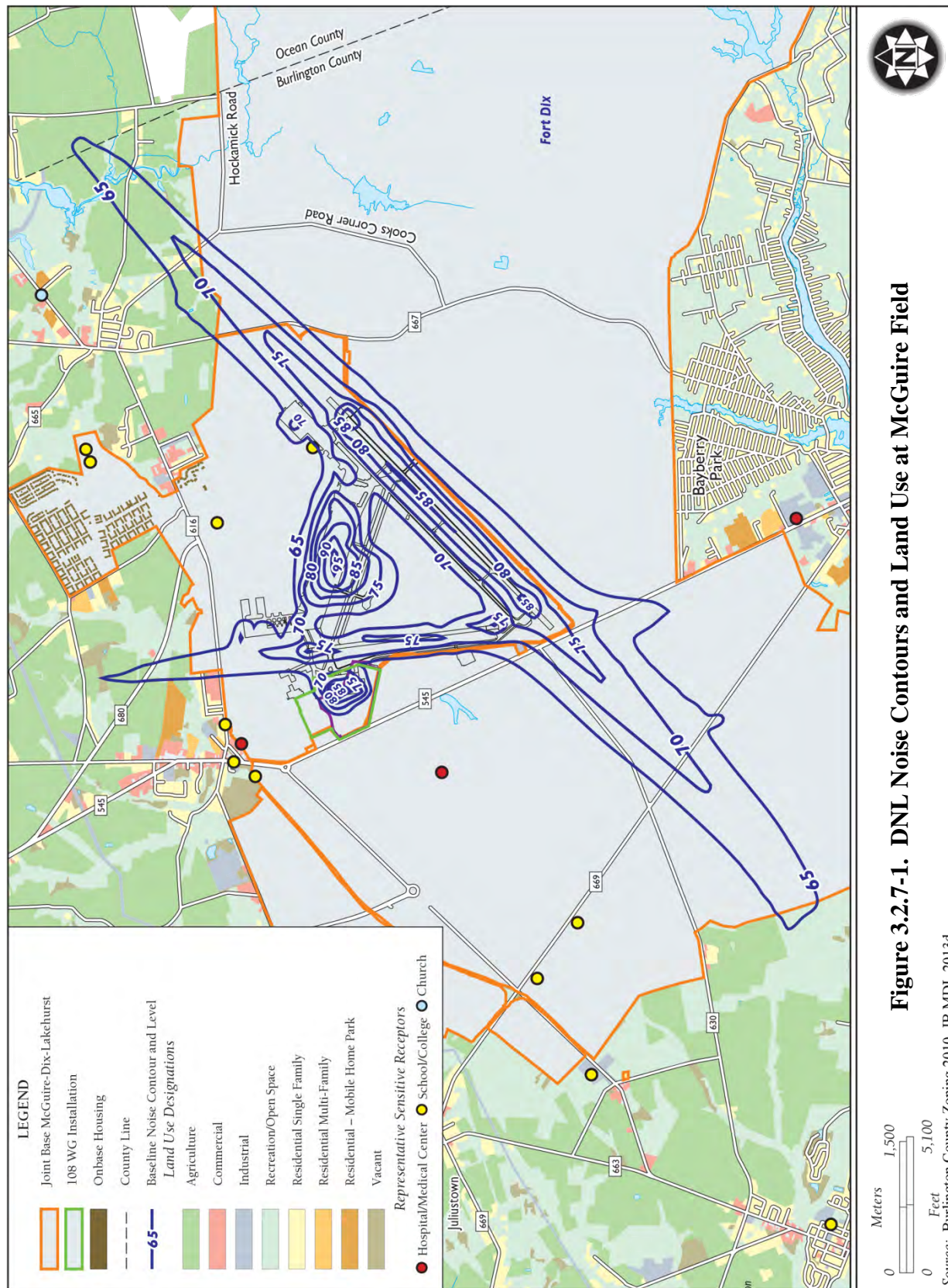
Potable water for the 108 WG installation is supplied by four wells drawn from the Potomac-Raritan-Magothy aquifer. McGuire Field has a water allocation permit that entitles the installation to use 450.75 million gallons of water per year with capacity of 4.03 million gallons per day. Average daily water usage averages between 1 and 1.4 million gallons per day. Water is treated at each well and temporarily stored in 25,000-gallon ASTs, then pumped to a single elevated 750,000-gallon water storage tank by the McGuire Field Water Department (Headquarters AMC 2008, 108 WG 2012).

#### **3.2.8.2 Wastewater**

The 108 WG installation generates wastewater from sanitary, stormwater, and industrial processes, including OWS discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 108 WG installation is conveyed into the Fort Dix tertiary wastewater treatment plant. The facility has a capacity of 4.6 million gallons per day but typically receives 1.0 to 1.5 million gallons of wastewater per day from McGuire Field (Headquarters AMC 2008).

#### **3.2.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 108 WG SWPPP (2010), the 108 WG installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.2.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.





#### 3.2.8.4 Electrical and Natural Gas Systems

Electricity is supplied to the 108 WG installation by Jersey Central Power & Light via a single 34.5-kilovolt switching station and aboveground lines. Natural gas is supplied by Public Service Electric and Gas Company via two separate metered main lines. Electricity consumption for CY 2012 at the 108 WG installation was 6,071 megawatt hours. Natural gas consumption for CY 2012 at the 108 WG installation was 34,609 thousand cubic feet (108 WG 2012).

#### 3.2.8.5 Solid Waste Management

Municipal solid waste at the 108 WG installation is managed in accordance with the McGuire AFB Solid Waste Management Plan (USAF 2002) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 108 WG installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These non-hazardous solid wastes are collected in dumpsters located throughout the 108 WG installation and transported to the Burlington County Resource Recovery Complex in Mansfield and Florence Townships, New Jersey (USAF 2002).

#### 3.2.8.6 Transportation

The 108 WG installation is located within close proximity to several major highways. The New Jersey Turnpike I-95), a major north/south highway, is less than 10 miles to the west of the installation. State Route (SR) 68 serves as the primary access to the installation from the New Jersey Turnpike. The 108 WG installation can be accessed through McGuire Field or through Fort Dix at Broidy Road Gate (Gate 9) or the NJ ANG gate (Gate 5). Wrightstown-Cookstown Road provides access to the main gate of McGuire Field as well as a secondary entrance to the east (Headquarters AMC 2008).

### 3.2.9 Hazardous Materials and Waste

#### 3.2.9.1 Hazardous Materials

Hazardous materials are used at the 108 WG installation for aircraft operations support and maintenance, including POL management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight simulation. Types of hazardous substances found on the 108 WG installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (108 WG 2011b).

There are currently 14 regulated USTs and 140 ASTs on McGuire Field containing jet fuel, diesel, and motor gasoline (Headquarters AMC 2008). Of these, the 108 WG has no regulated USTs and five ASTs on the installation.

#### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 108 WG installation in 2007. ACM identified in the insulation, floor tiles, and mastic were found in 18 buildings (Buildings/Hangars 1811, 3302, 3303, 3305, 3306, 3310, 3312, 3315, 3321, 3322, 3323, 3325, 3326, 3331, 3332, 3369, 3373, and 3379) (NJ ANG 2007).

A LBP survey has not been conducted at the 108 WG installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation.

The 108 WG does not maintain, operate, or own any PCB equipment or PCB-contaminated equipment and the subject property is considered PCB-free (108 WG 2011b).

#### 3.2.9.2 Hazardous Waste Management

McGuire AFB Integrated Contingency Plan for Oil Spill Prevention and Response Plan incorporates the requirements for a *Spill Prevention Control and Countermeasure Plan* and a *Facility Response Plan* (87<sup>th</sup> Air Base Wing 2009). It contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (87<sup>th</sup> Air Base Wing 2009). The 108 WG Hazardous Waste Management plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (108 WG 2011b).

The 108 WG hazardous waste disposal activities are covered under the McGuire Field USEPA Identification Number NJ2571824018, which is regulated as a Large Quantity Generator of hazardous waste. A hazardous waste generation point is where the waste is initially created or generated. An SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are seven SAPs (where a waste is initially accumulated) identified at the 108 WG installation in Buildings/Hangars 3324, 3325, 3331, 3333, 3336, 3379, and 3384. The 108 WG installation CAP is located on McGuire Field in Building 2310 (108 WG 2013c).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. OWSs located on the 108 WG installation primarily receive discharge from floor drains in maintenance areas.

### 3.2.9.3 Environmental Restoration Program

There are currently 42 ERP sites on McGuire Field, with 1 of these sites (SS-39) located on the 108 WG installation. In addition, there is currently a contaminated area located in the POL facility on the 108 WG installation that has recently been discovered and is currently being investigated. Table 3.2.9-1 provides details for each of these sites on the 108 WG installation and Figure 3.2.9-1 shows the locations. The exact boundaries for the Defense Logistics Agency (DLA) site is still being investigated. Therefore, the area shown on the map is only a general location.

**Table 3.2.9-1. ERP Sites within the 108 WG Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
SS-39	Site SS-39 includes several former and current industrial buildings at which aircraft maintenance, aircraft washing, and fuel cell repairs currently and historically were performed. It includes Buildings 3321, 3322, 3325, and 3350. A portion of Site SS-39 is currently an aircraft parking apron.	Remedial Investigation
DLA Site	Recently an area located within the POL facility on the 108 WG installation was discovered to have low levels of jet fuel and other fuel types. This site is being managed by the Defense Logistics Agency (DLA) and is still in the discovery phase. The extent and the source of the contamination is still unknown at this time. Soil and groundwater investigations are ongoing	Preliminary Assessment/Site Investigation

Source: Air Force Center for Engineering and the Environment 2012, 108 WG 2013c



Figure 3.2.9-1. Environmental Restoration Program Sites at the 108 WG Installation, JB MDL

### 3.2.10 Socioeconomics

#### 3.2.10.1 Population and Employment

##### *Population*

JB MDL is located approximately 18 miles southeast of Trenton, New Jersey in Ocean and Burlington counties. Current population data and estimates for the state of New Jersey, Burlington and Ocean counties, and New Hanover, North Hanover, and Pemberton Townships are provided in Table 3.2.10-1. From 1990 to 2010, Burlington County's population increased by 53,668, an increase of approximately 14 percent. Ocean County grew by 143,364 between 1990 and 2010, an increase of approximately 33 percent (USCB 1990b, 2000b, 2010b).

**Table 3.2.10-1. Population Growth within the Vicinity of JB MDL**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
New Jersey	7,730,188	8,414,350	8,791,894
Burlington County	395,066	423,394	448,734
Ocean County	433,203	510,916	576,567
New Hanover Township	9,546	9,744	7,385
North Hanover Township	9,994	7,347	7,678
Pemberton Township	31,342	28,691	27,912
Plumsted Township	2,089	7,275	8,421
Wrightstown Borough	3,843	748	802

Source: USCB 1990b, 2000b, 2010b.

The 108 WG currently supports a workforce authorization of 1,329, including 416 full-time and 913 part-time personnel (see Table 2.3-12).

##### *Employment and Earnings*

Table 3.2.10-2 presents total labor force and employment rates for New Jersey; Burlington and Ocean counties; New Hanover, North Hanover, Pemberton and Plumsted Townships; and Wrightstown Borough. Based on 2007-2011 ACS 5-year estimates, there were 244,032 persons in the labor force (able to work) and 224,720 employed within Burlington County, resulting in an unemployment rate of approximately 8 percent. Labor force estimates for Ocean County include 267,716 persons, with 243,182 employed, resulting in an unemployment rate of approximately 9 percent. Top employment industries in Burlington County include 1) educational services, and health care and social assistance; 2) professional, scientific, and management, and administrative and waste management services; and 3) retail trade (USCB 2011b). Principal employers include Virtua Memorial Hospital of Burlington County, Lockheed Martin, Burlington Coat Factory, Viking Yacht Company, and PHH Mortgage (Burlington County 2010). Top employment industries in Ocean County include 1) educational services, and health care and social assistance; 2) retail; and 3) professional, scientific, and management, and administrative and waste

management services (USCB 2011b). Principal employers include Saint Barnabas Health Care System, Six Flags theme parks, Naval Engineering Station-Naval Air Warfare Center, Toms River Regional School System, and Ocean County government (Ocean County 2008).

**Table 3.2.10-2. Employment Data (2011) within the Vicinity of JB MDL**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
New Jersey	4,633,565	4,230,814	402,751	8.7
Burlington County	244,032	224,720	19,312	7.9
Ocean County	267,716	243,182	24,534	9.2
New Hanover Township	2,082	1,984	98	4.7
North Hanover Township	4,030	3,641	389	9.7
Pemberton Township	15,079	13,465	1,614	10.7
Plumsted Township	4,731	4,391	340	7.2
Wrightstown Borough	467	432	35	7.5

*Note:* Employment numbers include individuals in the Armed Forces.

*Source:* USCB 2011b.

### 3.2.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 80,547 students were enrolled in schools from Kindergarten through Grade 12 in Burlington County. In Ocean County, 95,936 students were enrolled in schools from Kindergarten through Grade 12 (USCB 2011b).

### 3.2.10.3 Housing

In 2010, the number of housing units in Burlington County was 175,615, with a vacancy rate of 5.3 percent. In Ocean County in 2010, there were a total of 278,052 housing units with a vacancy rate of approximately 21 percent (USCB 2010b). Currently, approximately 20 percent of active duty personnel live on-base (108 WG 2013c).

## 3.2.11 Environmental Justice and the Protection of Children

### 3.2.11.1 Minority and Low-Income Populations

Table 3.2.11-1 displays the minority, low-income, and children under age 18 within the state of New Jersey, as well as the counties, boroughs, and townships within the vicinity of McGuire Field. Approximately 26 percent of the population of Burlington County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 31 percent for the state of New Jersey. Ocean County has a lower proportion of minorities (approximately 9 percent) than Burlington County or the state (USCB 2010c).

The percentage of population living below the poverty level for the state of New Jersey (approximately 9 percent) is higher than Burlington County (approximately 5 percent), and similar to Ocean County (approximately 10 percent) (USCB 2010b).

**Table 3.2.11-1. Population within the Vicinity of JB MDL<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
New Jersey	8,791,894	2,762,646	31.6	826,438	9.4	2,065,214	23.5
Burlington County	448,734	117,392	26.2	23,783	5.3	104,243	23.2
Ocean County	576,567	51,990	9.0	54,774	9.5	134,919	23.4
New Hanover Township	7,385	3,393	45.9	258	3.5	586	7.9
North Hanover Township	7,678	1,522	19.8	499	6.5	2,266	29.5
Pemberton Township	27,912	9,064	32.5	2,735	9.8	6,869	24.6
Plumsted Township	8,421	489	5.8	1,322	15.7	2,207	26.2
Wrightstown Borough	802	422	52.6	36	4.5	216	26.9

- Note:*
1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 American Community Survey 5-Year Estimates.
  2. The percentage of low-income persons is calculated as a percentage of all persons for whom the Bureau of the Census determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010b, 2011c.

Table 3.2.11-2 displays the total population, total minority population, percentage minority, total low-income population, and low-income percentages for the vicinity of JB MDL with the baseline DNL greater than 65 dB.

**Table 3.2.11-2. Population within Baseline Noise Contours, JB MDL<sup>1</sup>**

<i>Noise Contour</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>
65-70	54	8	15	3	6
70-75	26	4	15	1	4
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>80</b>	<b>12</b>	<b>15</b>	<b>4</b>	<b>5</b>

- Note:*
1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.
  2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Sources:* USCB 2010c, 2011c.



In the area surrounding JB MDL, approximately 80 people were estimated to be affected by existing DNL between 65 and 75 dB. Out of that total, approximately 30 percent are considered to be minorities and 5 percent to be low-income. The percentage of minority populations currently affected by noise is greater than the approximate 26 percent minority average in Burlington County and greater than the approximate 9 percent minority average in Ocean County. The percentage of low-income populations in the area surrounding JB MDL affected by the DNL greater than 65 dB is approximately the same as the 5 and slightly lower than the 10 percent low-income average in Burlington and Ocean counties (respectively).

#### 3.2.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Burlington County was approximately 104,243 (approximately 23 percent of the population). In 2010, the number of children under the age of 18 living in Ocean County was approximately 134,919 (approximately 23 percent of the population) (Table 3.2.11-1). The state of New Jersey has a similar percentage population of children compared to the counties (approximately 24 percent). There are no on-installation housing or facilities for children located at the 108 WG installation. Currently, there are no Kindergarten through Grade 12 off-installation schools that are exposed to aircraft DNL of 65 dB or above; however, there is one child development center that is currently located within the 65 dB contour.

### **3.3 PEASE AIR NATIONAL GUARD STATION**

Pease ANGS, home of the 157 ARW of the NH ANG, is located in Portsmouth and Newington, New Hampshire, approximately 55 miles north of Boston, Massachusetts. The 157 ARW base is situated on the northeast side of the Portsmouth IAP at Pease, which is owned and operated by PDA.

#### **3.3.1 Noise**

To evaluate noise impacts in the vicinity of a military installation located at a commercial airport with a published FAR Part 150 Airport Noise Compatibility Study, the USAF allows for use of the FAA's INM to generate DNL noise contours. The Airport Authority under the FAA uses INM for generating noise contours and for Portsmouth IAP, the FAA's INM was used. For more detailed information on the noise modeling methods, see Appendix A, Section A.1.2.

##### **3.3.1.1 Baseline Operations**

In 1996, the PDA published a FAR Part 150 Airport Noise Compatibility study for Portsmouth IAP. This study is currently being updated but was not available to use for this EIS. The 1996 INM aircraft operational data was updated in 2008 in support of an Environmental Assessment prepared to support construction projects at Pease ANGS (157 ARW 2008a). This data for the KC-135 was updated to reflect the actual KC-135 2012 aircraft operations and is used as the baseline for this analysis.

Based on aircraft operations data validated in March 2013, approximately 37,016 total aircraft operations occurred at Portsmouth IAP during the 12-month period ending October 2012 (Pomeroy 2013). An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. Table 3.3.1-1 summarizes the frequency of aircraft operations for the Portsmouth IAP airfield based on information provided by base staff, flying organizations, and air traffic control personnel. The majority of aircraft traffic includes air cargo, commercial regional jets (air taxi), and larger commercial aircraft and other based military aircraft, along with based ANG KC-135 aircraft. Although the number of aircraft operations at an installation varies from day to day, for Portsmouth IAP, operations are calculated for an AAD, meaning that yearly operations are averaged across all 365 days of the year. Table 3.3.1-1 reflects a total of approximately 102 aircraft operations on an AAD (37,410 divided by 365 days). Approximately 4 percent of the total operations at Portsmouth IAP occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.3.1-1. Current Portsmouth IAP Annual Aircraft Operations**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-135	2,939	131	2,939	131	5,878	262	6,140
Other Aircraft <sup>3</sup>	14,541	1,094	14,853	782	29,394	1,876	31,270
<b>Total</b>	<b>17,480</b>	<b>1,225</b>	<b>17,792</b>	<b>913</b>	<b>35,272</b>	<b>2,138</b>	<b>37,410</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: Lear 25, 35, Airbus 319.

Source: 157 ARW 2013a.

Based on the 2012 baseline data, the 157 ARW KC-135 aircraft flew a total of 6,140 annual airfield operations, or an average of 17 airfield operations a day. Approximately 4 percent of the total KC-135 operations occur during environmental night. Approximately 16 percent of total operations at Portsmouth IAP are accomplished by the 157 ARW KC-135 aircraft.

### 3.3.1.2 Runway and Flight Profiles

Portsmouth IAP aircraft use straight out departures, straight in approaches, IFR or radar closed patterns, and VFR closed patterns as the basic flight patterns for training flights and local arrival and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise*.

### 3.3.1.3 Existing Noise Environment

Noise contours developed for baseline conditions at Portsmouth IAP are shown in Figure 3.3.1-1. The acreage within each DNL contour on Portsmouth IAP property is shown in Table 3.3.1-2; no off-airport noise levels greater than 65 dB DNL occur.

**Table 3.3.1-2. Acres within Baseline Noise Contours, Portsmouth IAP**

<i>Noise Level (dB)</i>	<i>On-Airport (acres)</i>	<i>Off-Airport (acres)</i>	<i>Total (acres)</i>
65-70	237	0	237
70-75	81	0	81
75-80	16	0	16
80-85	1	0	1
Greater than 85	0	0	0
<b>Total</b>	<b>334</b>	<b>0</b>	<b>334</b>

Note: Numbers may not add precisely due to rounding.  
 dB = decibel



### *Potential Hearing Loss*

As shown in Table 3.3.1-2, there is no property off the Portsmouth IAP that falls within the baseline 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### **3.3.1.4 Portsmouth International Airport Noise Abatement Procedures**

Portsmouth IAP has published certain restrictions on flying activities that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations. The restrictions are published on aeronautical charts and apply to both military and civilian aircraft (SkyVector 2013a). The restrictions include guidance for noise abatement procedures for the airfield including, but not limited to, requiring aircraft departing the airport to maintain runway heading to 1,100 feet MSL prior to turning and not allowing aircraft to practice low approaches or touch-and-go landings between the hours of 11:00 p.m. and 7:00 a.m. for local based aircraft and from 9:00 p.m. to 7:00 a.m. for transient aircraft or before 12:00 on Sundays for all aircraft. The noise abatement procedures are considered voluntary for military aircraft and can be waived based on mission requirements (Smith 2013a).

#### **3.3.1.5 Pease Air National Guard Station Noise Complaints Procedures**

Currently, all noise complaints are handled through the PDA noise complaint hotline or website. Thirty-one noise complaints were logged between April 10, 2012 and December 12, 2012 (nine of the complaints received were from one specific individual, five complaints from another specific individual, and the rest were from others). Sherman Village, a housing development, lies just outside of the 65 dB DNL noise contour; complaints received from that area are typically associated with helicopter activity (PDA 2012a, 2012b).

### **3.3.2 Air Quality**

#### **3.3.2.1 Regulatory Setting**

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The New Hampshire Department of Environmental Services is the agency responsible for the regulation of air quality within the state of New Hampshire. The state of New Hampshire regulates air quality through the New Hampshire Code of Administrative Rules, ENV-A 100 to ENV-A 4805. The state of New Hampshire has adopted the NAAQS and has not adopted separate state air quality standards. The NAAQS are summarized in Table 3.3.2-1.

**Table 3.3.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	<b>NATIONAL STANDARDS<sup>a</sup></b>	
		<i>Primary<sup>b,c</sup></i>	<i>Secondary<sup>b,d</sup></i>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary

*Notes:* a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide.

*Source:* USEPA 2012.

Pease ANG, home of the 157 ARW of the NH ANG, is located in Portsmouth and Newington, New Hampshire, approximately 55 miles north of Boston, Massachusetts. The USEPA had previously classified the Boston-Manchester-Portsmouth area as a moderate nonattainment area for the 1997 O<sub>3</sub> standard. On January 31, 2013, the USEPA formally redesignated southeastern New Hampshire as an attainment area for the 1997 O<sub>3</sub> standard. The region is therefore considered a maintenance area for O<sub>3</sub>. The region is designated attainment/unclassified area for all other criteria pollutants. The Proposed Action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the classification for the region as a maintenance area, the *de minimis* emission thresholds for the General Conformity Rule for ozone precursors (NO<sub>x</sub> and VOCs) is 100 tpy.



The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

### 3.3.2.2 Climate and Meteorology

Portsmouth, New Hampshire has a humid continental climate with warm summers and no dry season. The area within 25 miles of this station is covered by forests (62 percent), oceans and seas (34 percent), and lakes and rivers (2 percent). Over the course of a year, the temperature typically varies from 17°F to 81°F and is rarely below 3°F or above 89°F. The warm season lasts from June 4 to September 15 with an average daily high temperature above 71°F. The highest temperatures occur in July, with an average high of 81°F and low of 63°F. The cold season lasts from December 5 to March 13 with an average daily high temperature below 42°F. The coldest temperatures occur in January, with an average low of 17°F and high of 32°F (Northeast Regional Climate Center 2013b).

The wind is most often out of the west (24 percent of the time), north west (14 percent of the time), and south west (11 percent of the time). Over the course of the year, typical wind speeds vary from 0 miles per hour to 16 miles per hour (calm to moderate breeze), rarely exceeding 25 miles per hour (strong breeze). Winds are generally highest during the springtime (Northeast Regional Climate Center 2013b).

### 3.3.2.3 Regional and Local Air Pollutant Sources

The 157 ARW is based on the northeast side of Portsmouth IAP, approximately 1 mile from Portsmouth, New Hampshire. The surrounding area is developed to the east and south of the airport. To the west of the airport lies the Great Bay National Wildlife Refuge and Great Bay.

The USEPA's National Emissions Inventory includes data for the year 2008 for Rockingham County. Table 3.3.2-2 summarizes the regional emissions (stationary, area-wide, and mobile) of criteria pollutants and precursor emissions for the affected areas.



**Table 3.3.2-2. Regional Emissions for Rockingham County, New Hampshire**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	5,780	1,042	2,628	6,982	3,888	3,696
Area-Wide Source	4,368	3,521	159	8	4,055	981
Mobile Sources	50,746	5,226	8,648	587	534	421
<b>Total</b>	<b>60,894</b>	<b>9,789</b>	<b>11,435</b>	<b>7,577</b>	<b>8,477</b>	<b>5,098</b>

*Notes:* Numbers may not add precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.3.2.4 Baseline Air Quality

Representative background air monitoring data for the 157 ARW for the period 2008-2012 are shown in Table 3.3.2-3. The closest monitoring stations to Portsmouth IAP include the monitoring station in Portsmouth itself, along with monitoring stations in Nashua and Manchester.

As shown in Table 3.3.2-3, the area has experienced one to two O<sub>3</sub> exceedances annually during the recent 5-year period. The data show that the area did not experience violations of other NAAQS.

**Table 3.3.2-3. Ambient Air Monitoring Data for the Portsmouth Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.079	0.076	0.081	0.086	0.083
Days above federal standard (0.075 ppm)	1	1	2	1	1
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	33.2	29	26.3	14	24.3
Days above federal standard (35 µg/m <sup>3</sup> )	0	0	0	0	0
Annual Average value (µg/m <sup>3</sup> )	8.2	7.1	7.4	6.5	7.7
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	61	57	60	59	59
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	9.4	3.3	3.4	2.6	0.6
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	4.4	2.3	2.4	2.4	0.6
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	NA	0.051	0.050	0.012	0.011
98 <sup>th</sup> Percentile (ppm)	NA	0.047	0.042	0.010	0.010
Days above federal standard (0.100 ppm)	NA	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.085	0.073	0.048	0.070	0.034
99 <sup>th</sup> Percentile (ppm)	0.062	0.042	0.045	0.037	0.021
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	0	0
Peak 24-hour value (ppm)	0.025	0.016	0.015	0.014	0.006

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.3.2.5 157<sup>th</sup> Air Refueling Wing Emissions

The 157 ARW currently flies and maintains eight KC-135 refueler aircraft and one backup inventory KC-135 to support its air refueling mission. The primary support operations performed at the 157 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance (157 ARW 2005, 2013c).

Emissions for the 157 ARW have been quantified in the *Final 2009 Air Emissions Inventory* (157 ARW 2010). The inventory evaluated the emissions from the 157 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 50 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, 100 tpy for all other criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs (157 ARW 2010).

The 157 ARW operates under General State Permit GSP-EG-0370 which includes nine emergency generators and one emergency fire pump. The permit contains operational limits such that its potential emissions are restricted below the Title V major source thresholds. The 2009 Air Emissions Inventory demonstrates that the installation operates in compliance with the limits in its permit, and total base-wide potential emissions from stationary sources are below the major source thresholds (157 ARW 2010).

Stationary source emissions at the 157 ARW include emissions from natural gas, diesel, and propane-fired heating units, internal combustion engines, fuel tanks, a gasoline service station, and various minor sources such as solvent use, deicing, and welding. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 157 ARW installation considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources, and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #3, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3-13, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.3.2-4.

**Table 3.3.2-4. 157 ARW Baseline Emissions at Pease ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	2.41	36.29	73.94	6.29	0.33	0.33	17,480
AGE	0.00	0.01	0.07	0.00	0.00	0.00	1,588
Engine Testing	0.10	1.47	0.40	0.06	0.01	0.01	174
POVs	1.11	19.06	0.91	0.01	0.04	0.02	597
<b>Total Baseline Emissions</b>	<b>3.62</b>	<b>56.84</b>	<b>75.32</b>	<b>6.36</b>	<b>0.37</b>	<b>0.35</b>	<b>19,839</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* 157 ARW 2010.

### 3.3.3 Safety

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Portsmouth IAP.

#### 3.3.3.1 Ground Safety

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 157 ARW are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by AFOSH requirements. ARFF services at Pease ANGS are available on a 24-hour basis. Upon notification of an in-flight or ground emergency, the crash and rescue services personnel would coordinate emergency services. ARFF equipment and personnel at Pease ANGS meet USAF requirements (Headquarters AMC and NGB 2013a).

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas. The city of Portsmouth, New Hampshire utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations. Details of development and land use in the Portsmouth IAP vicinity are included in Section 3.3.7, *Land Use*.

##### *Explosive Safety*

The 157 ARW uses a small range of munitions required for performance of their mission. The existing munitions storage capabilities on Pease ANGS meet the requirement for small arms deployment/training ammunition and other munitions required by the 157 ARW. The munitions storage complex consists of five earth-covered igloos of 208 SF each (total storage area of 1,040 SF), with a 192 SF receipt/inspection facility. Additional storage was established in the Squadron Operations building, which provides additional square footage for aircrew flight equipment assets. Additionally, a 2013 Memorandum of Agreement with Westover Air Reserve Base is in place augmenting munitions storage capacity.

### *Anti-Terrorism/Force Protection*

Many of the 157 ARW military facilities at Pease ANGS were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the 157 ARW would incorporate these standards to the maximum extent practicable.

#### 3.3.3.2 Flight Safety

##### *Flight Safety Procedures*

Aircraft flight operations from Pease ANGS are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures*, 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

##### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight-hours (AFSEC 2012). The 157 ARW has not experienced a Class A mishap in the past 10 years (Pease ANGS 2013).

##### *Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife-aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 157 ARW of the NH ANG has an effective, on-going BASH program through which information and assistance is freely shared between airfield users, the Portsmouth IAP staff, and the local air traffic controllers. The airport also has an aggressive program with the USDA, including continual monitoring within the fenceline to minimize BASH potential. The airport has an excellent track record of managing BASH issues and has successfully included the management at the off-airport landfill property. Serious BASH-related accidents within the

immediate Portsmouth IAP area are rare and have never resulted in a Class A mishap (Pease ANG 2013). The 157 ARW has recorded 98 minor BASH incidents from 2008 to 2013, with an average of fewer than 20 per year (Pease ANG 2013).

### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. In accordance with AFIs, Pease ANG has established local procedures for gross weight adjustments; fuel jettison areas are over the Atlantic Ocean and above 20,000 feet AGL. 157 ARW aircraft jettisoned fuel once in 2012 and twice in 2011 (Pease ANG 2013).

## **3.3.4 Soils and Water**

### **3.3.4.1 Soils**

The Portsmouth area of New Hampshire is within the Appalachian Highlands and consists almost entirely of glaciated till plains and rolling hills dissected by narrow valleys with a thin mantle of till. The river valleys and coastal plains are filled with glacial lake sediments, marine sediments, and glacial outwash (USDA 2006). The 157 ARW installation is located on improved land and is generally flat with plateau-like declining coastal terrain. Relief ranges from approximately 0 to 115 feet MSL with slopes generally under 5 percent (157 ARW 2008a).

The NRCS Soil Survey for Rockingham County, New Hampshire identifies the following five individual soil types at the installation:

*Pennichuck channery very fine sandy loam, 3 to 8 percent slopes:* This is a gently sloping soil typically found on low hills and terraces from till or glacial drift composed of an unconsolidated mixture of sediments. The rating class for building site development is considered somewhat limited due to slope, depth to hard bedrock, and depth to saturated zone. This soil type is designated as Prime Farmland (NRCS 2012). Approximately 11 percent of the installation is composed of this soil type.

*Udorthents, smoothed:* This soil is found in areas that have been excavated and regraded or that have been filled with soil material and graded. This soil type is typically used for urban development or landfills. The suitability of the soils as a site for development varies (NRCS 2012). The rating class for building site development is not rated for this soil type. Approximately 15 percent of the installation is composed of this soil type.

*Urban land:* This soil primarily consists of cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is not

rated for this soil type and requires onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2012). Approximately 42 percent of the installation is composed of this soil type.

*Urban land-Canton complex, 3 to 15 percent slopes:* This soil is typically found on broad plains and low hills that are partially covered by streets, parking lots, and buildings. The soil consists of strongly intermingled Urban land and sloping Canton soil (NRCS 2012). The rating class for building site development is not rated for this soil type. Approximately 30 percent of the installation is composed of this soil type.

*Windsor loamy sand, 3 to 8 percent slopes:* This gently sloping soil is typically found on low hills, broad plains, and adjacent to major streams. The rating class for building site development is considered somewhat limited due to slope and depth to saturated zone. In addition, this soil type is designated as Farmland of Local Importance (NRCS 2012). Approximately 2 percent of the installation is composed of this soil type.

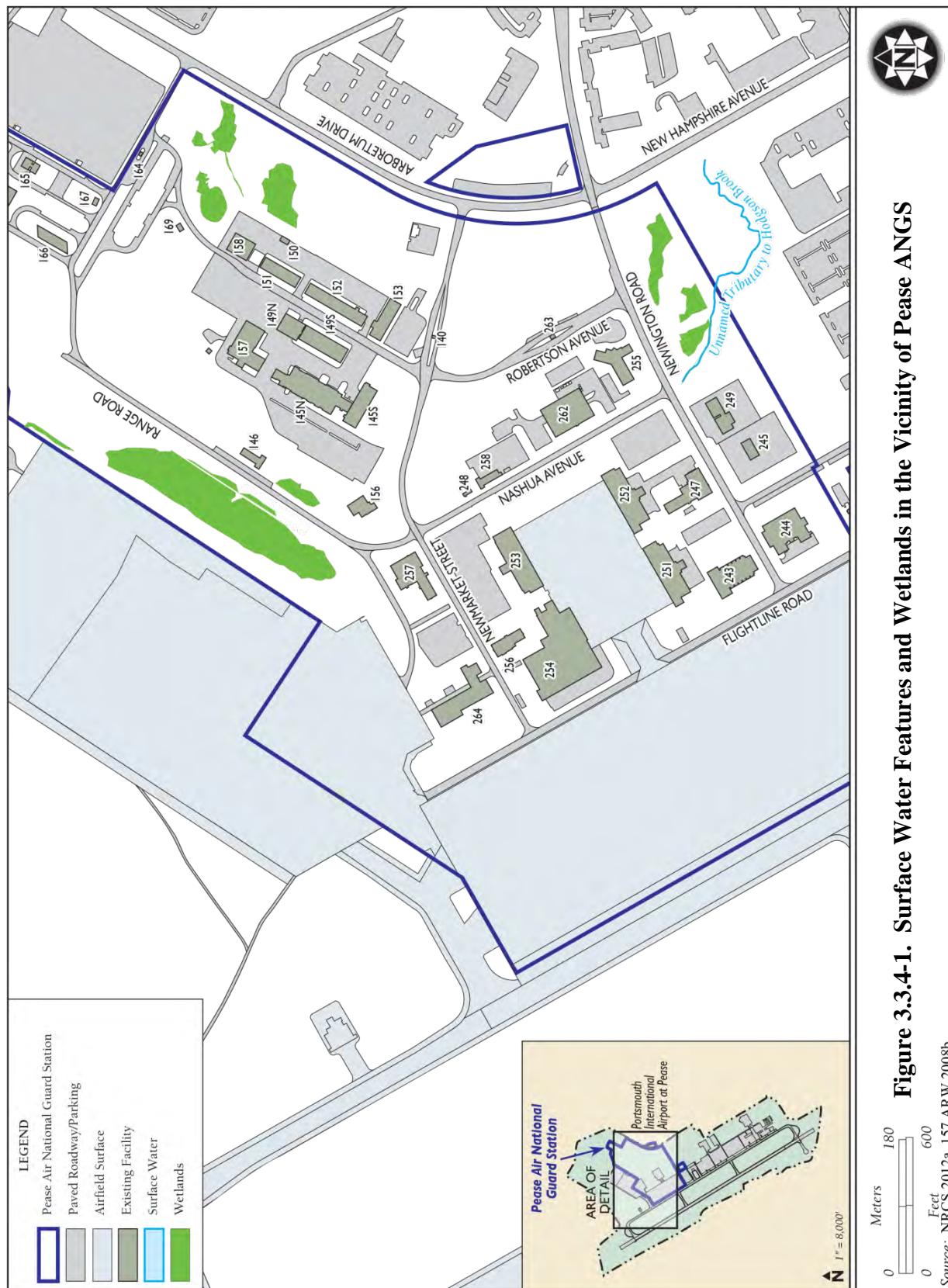
#### 3.3.4.2 Surface Water

The 157 ARW installation is located within the Piscataqua-Salmon Falls Watershed that encompasses over 2,590 square miles across the states of Maine, New Hampshire, and Massachusetts (USEPA 2013d). The Piscataqua River Watershed, a sub-basin of Piscataqua-Salmon Falls Watershed, is the local watershed surrounding Portsmouth IAP. The Piscataqua River Watershed begins at the confluence of Salmon Falls and Cocheco Rivers and ultimately drains to Portsmouth Harbor (Seacoast Watershed Information Manager 2013).

Surface water features within the vicinity of the 157 ARW installation include the Atlantic Ocean and Portsmouth Harbor to the east, the Great Bay National Estuary to the southwest, Little Bay to the northwest, and several rivers and creeks including: Flagstone Brook to the north, the confluence of Oyster and Piscataqua rivers to the northeast, Paul's Brook to the northeast, Grafton Ditch to the south, Hodgson Brook to the east, and McIntyre Brook to the west (Figure 3.3.4-1).

The Great Bay National Estuary, adjacent to the Portsmouth IAP along its southwestern border, is a unique water feature as it is both a saltwater and a freshwater system, set apart from the coastline. Great Bay lies at the confluence of tidally driven salt water from the Gulf of Maine and fresh water from the Salmon Falls, Cocheco, Bellamy, Oyster, Lamprey, Squamscott, and Winnicut rivers. The USEPA has afforded special protection to it as one of only 28 Estuaries of National Significance (New Hampshire Department of Environmental Services 2013).





Surface water within the installation primarily consists of a series of man-made ditches, storm sewers, and drainage swales. Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes. There are four primary drainage basins on the installation: Outfall-001, -002, -003, and -004. Outfall-001 drains to Hodgson Brook and ultimately joins the Piscataqua River. Outfall-002 drains to Flagstone Brook and eventually discharges to Little Bay. Outfall-003 drains to McIntyre Brook ultimately discharging to Great Bay. Outfall-004 drains to Grafton Ditch and eventually discharges to the Piscataqua River. The outfalls associated with industrial activity are regulated under an individual National Pollutant Discharge Elimination System (NPDES) permit for Stormwater Runoff Associated with Industrial Activity (Permit No. NH0090000). The permit is administered by the USEPA New England Region (Portsmouth IAP 2011).

#### 3.3.4.3 Groundwater

Groundwater in this area is primarily composed of crystalline-rock aquifers of the New England Physiographic Province (USGS 1995b). The regional groundwater system within the Great Bay area consists of a till- or marine-sediment-covered crystalline bedrock aquifer. Coarse-grained sand and gravel aquifers are generally small and discontinuous with the exception of a large ice-contact deposit beneath the former Pease AFB, in Newington. Crystalline bedrock consists of three main units: the Kittery Formation, a metasandstone on the western side of the bay; the Eliot Formation, a phyllite along the eastern and southern sides of the bay; and the Exeter Diorite, inland west of the bay (USGS 2001).

Groundwater at the 157 ARW occurs in unconsolidated material, fractured bedrock, and competent bedrock. The principal water-bearing overburden units are the Upper Sand and Lower Sand. Tidal fluctuations can be measured in both water table and bedrock wells within the installation. Groundwater elevations also vary seasonally, with groundwater highs from December to May and lows from July to September. Based on the installation groundwater contour map, the subject property is on a localized high point with radial flow outward (157 ARW 2008a).

The primary water source for the Pease International Tradeport are three wells operated by Portsmouth waterworks; Haven, Smith, and Harrison wells (City of Portsmouth 2010). There are currently three active Groundwater Management Zones located on the installation, as mandated by the New Hampshire Department of Environmental Services. A Groundwater Management Zone is a three-dimensional region containing groundwater being managed to mitigate impairment caused by the release of contaminants from a site. The source of contaminants in the three Groundwater Management Zones on the installation include the flightline, Building 249 (a storage facility), and the Bulk Fuels Storage area (157 ARW 2008a).

#### 3.3.4.4 Floodplains

Per the FEMA Flood Insurance Rate Map for Rockingham County, New Hampshire, Panel 255 (Map Number 33015C0255E, Effective May 17, 2005), the 157 ARW installation is located within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding (FEMA 2005).

### 3.3.5 Biological Resources

#### 3.3.5.1 Vegetation

Portsmouth IAP occurs within the Eastern Broadleaf Forest (Oceanic) Province. Vegetation in this region typically is characterized by a winter deciduous forest dominated by tall broadleaf trees (Bailey 1995). The majority of the 157 ARW installation is developed or actively landscaped, with approximately 37 percent containing natural vegetation. Natural vegetation consists of primarily fragmented areas comprised of Appalachian oak-pine forests in the northern and southeastern portion of the installation. Dominant evergreen species include white pine (*Pinus strobus*) and hemlock (*Tsuga canadensis*). Dominant deciduous species include maples (*Acer* spp.), oaks (*Quercus* spp.), birch (*Betula* spp.), beech (*Fagus grandifolia*), and hickories (*Carya* spp.) (NGB 2011; 157 ARW 2008a, 2013b).

#### 3.3.5.2 Wildlife

Due to the fragmented pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present at the airport and the 157 ARW installation consists of species that are highly adapted to developed and disturbed areas. Pease ANG is located within the Atlantic Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found at Portsmouth IAP or within its vicinity are protected under the MBTA. Common bird species occurring or potentially occurring in or near the airport include Rock Doves (*Columba livia*), European Starlings (*Sturnus vulgaris*), Mourning Doves (*Zenaida macroura*), American Crows (*Corvus brachyrhynchos*), American Kestrels (*Falco sparverius*), Red-winged Blackbirds (*Agelaius phoeniceus*), Short-eared Owls (*Asio flammeus*), and Red-tailed Hawks (*Buteo jamaicensis*). Common mammals include white-tailed deer (*Odocoileus virginianus*), red foxes (*Vulpes vulpes*), coyotes (*Canis latrans*), eastern chipmunk (*Tamias striatus*), gray squirrel (*Sciurus carolinensis*), and raccoon (*Procyon lotor*). Common reptiles and amphibians include the American bullfrog (*Lithobates catesbeianus*), American toad (*Anaxyrus americanus*), eastern red-backed salamander (*Plethodon cinereus*), black racer (*Coluber constrictor*), snapping turtle (*Chelydra serpentina*), and spotted turtle (*Clemmys guttata*) (157 ARW 2008a, 2013b).

### 3.3.5.3 Special Status Species

No federally listed or candidate species are known to occur within the airport vicinity or on the 157 ARW installation. However, eight state listed species have been observed within the airport vicinity, and additional special status species have been observed within Rockingham County within the vicinity of Portsmouth IAP. A list of these species can be found in Appendix E. There is no critical habitat located on the installation (157 ARW 2013, New Hampshire Fish and Game 2013, New Hampshire Natural Heritage Bureau 2013).

### 3.3.5.4 Wetlands

Nine jurisdictional wetlands, totaling 6.86 acres, occur on the 157 ARW installation in the southeast and northern portion of the installation (Figure 3.3.4-1). Seven of these wetlands are palustrine forested and two are considered palustrine emergent wetlands (NGB 2011, 157 ARW 2013b). None of these wetlands occur within the vicinity of the proposed construction projects.

## 3.3.6 Cultural Resources

### 3.3.6.1 Archaeological Resources

All portions of the 157 ARW installation determined to be relatively undisturbed were intensively surveyed for cultural resources. One archaeological resource consisting of two Native American artifacts was encountered in a shovel test pit within a layer of fill material from adjacent construction activities. Due to the isolated and sparse nature of the find and its location in fill, the resource is considered not eligible for listing in the NRHP (157 ARW 2009). The New Hampshire SHPO has concurred with these findings (see Muzzey 2009 in Appendix B4).

### 3.3.6.2 Architectural Resources

All 46 buildings and structures pre-dating the end of the Cold War era (pre-1990) were inventoried and evaluated for NRHP-eligibility (157 ARW 2009). None of the buildings, structures, or monuments were recommended as eligible for listing in the NRHP (157 ARW 2009; St. Louis 2009). The New Hampshire SHPO has concurred with these recommendations (see Muzzey 2009 and St. Louis 2009 in Appendix B4).

### 3.3.6.3 Traditional Resources

The 157 ARW installation contains no known traditional resources; however, one federally-recognized Tribe that is historically, culturally, and linguistically affiliated with the area has been identified: The Penobscot Indian Nation.

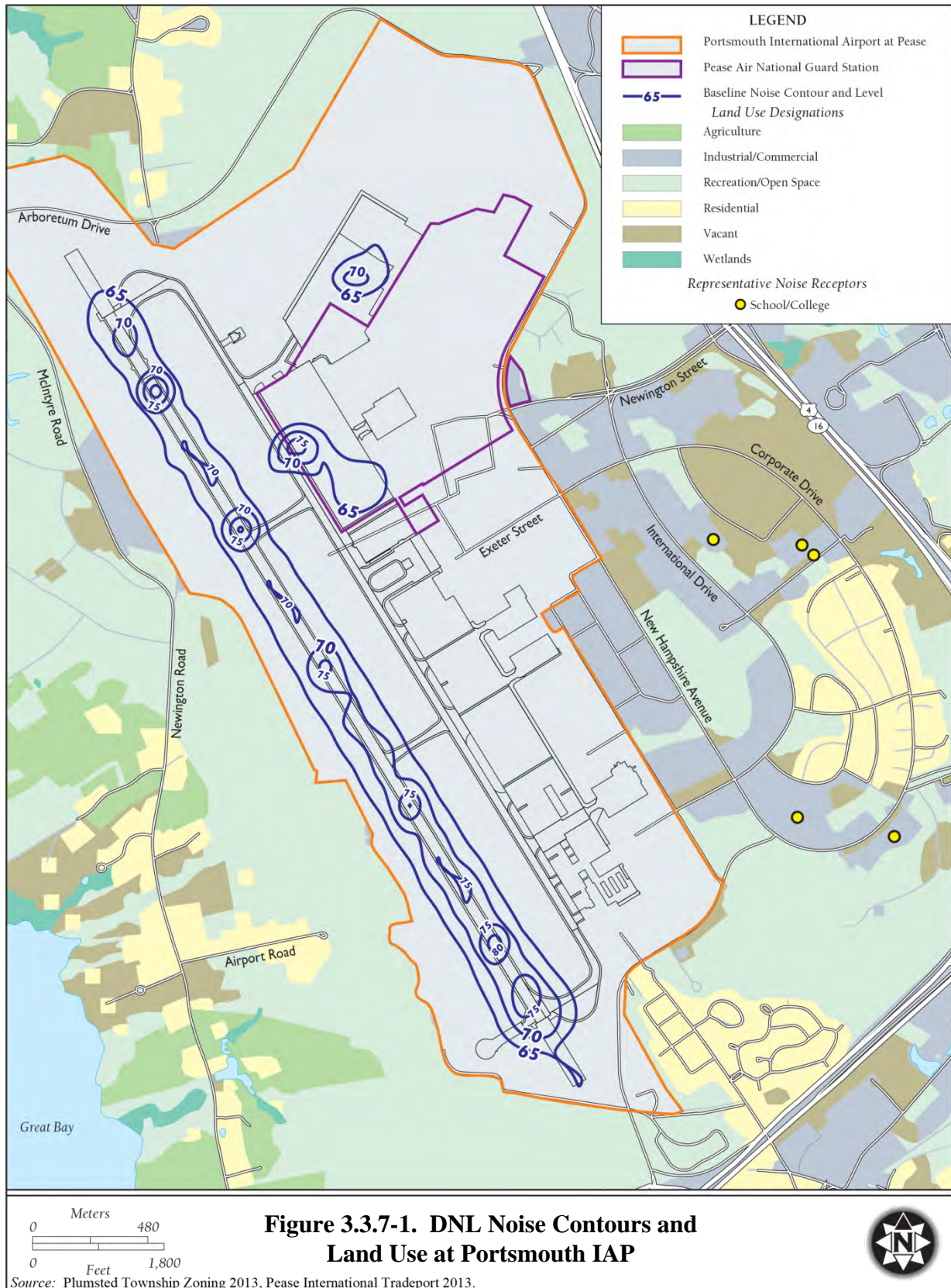
### 3.3.7 Land Use

The Pease ANGS occupies approximately 220 fee owned acres in the northeastern portion of Portsmouth IAP, situated in both Newington and Portsmouth in Rockingham County, New Hampshire. Portsmouth IAP is a holding of the Pease International Tradeport; the Tradeport is owned and operated by the PDA, a state agency of New Hampshire. The present day Pease International Tradeport was established in the 1950s by the USAF as Pease AFB and owned by the USAF Strategic Air Command. When the Base Realignment and Closure Committee closed Pease AFB in October 1991, the 157 ARW became the sole occupant. The USAF maintained ownership of and management responsibility for the property of the remaining 1,073 acres until 1997. Between 1992 and 1997, the USAF transferred 1,054 acres to the USFWS and 19 acres to the U.S. Department of Transportation (157 ARW 2008a).

Land use surrounding Portsmouth IAP is predominantly open space characterized by forested areas interspersed with commercial, residential, industrial parcels. Small parcels of agricultural use are located to the southwest. Wetland areas lie to the northwest and southeast. The Great Bay National Wildlife Refuge, established in 1992 and managed by the USFWS, occupies a large tract of land just to the northwest of the airport and presents a barrier to future development (Rockingham Planning Commission 2006). The Great Bay Estuary, New Hampshire's largest estuarine system, lies approximately 1 mile to the west and north of the airport boundary. This estuarine complex is fed by the tidal waters of the Piscataqua River, flowing approximately 1.5 miles east of the airport. The Spaulding Turnpike (SR 4) runs roughly parallel to the airport's eastern boundary and I-95 traverses just beyond the southeastern boundary of the airport.

Zoning surrounding the airport generally supports compatible land use planning and provides protection of Portsmouth IAP (City of Portsmouth 2012a). Zoning codes define and establish airport hazard zones height limitations and land use restrictions within these zones. This zoning protects RPZs, details of which can be found in the Safety section of Appendix A, Section A.3. In Portsmouth, land surrounding the airport to the south and west is zoned primarily as Natural Resource Protection (Open Space/Conservation) with an isolated development zoned for Residential use, located between I-95 and the south end of the airport. A golf course is also located just south of the airport. Adjacent areas to the east of the airport are zoned for Business (Commercial), Residential, and Municipal (Public) (City of Portsmouth 2012a). In Newington, areas to the north are generally zoned for Residential and Commercial uses (Town of Newington 2009). Current average noise levels from aircraft operations above 65 dB DNL do not extend off-base (Figure 3.3.7-1).





### **3.3.8 Infrastructure and Transportation**

#### **3.3.8.1 Potable Water System**

Potable water for the 157 ARW installation is supplied by the Madbury Treatment Plant operated by the City of Portsmouth Water Department. Potable water in the area is supplied primarily from the three regional groundwater aquifer wells located on Pease International Tradeport. The City of Portsmouth pumps approximately 1.64 trillion gallons of water per year to its customers (City of Portsmouth 2012b). In CY 2012, 26,510,960 gallons of potable water was supplied to the 157 ARW installation (157 ARW 2012a).

#### **3.3.8.2 Wastewater**

The 157 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including oil/water separator discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 157 ARW installation is conveyed into the municipal sewage system, operated by the City of Portsmouth to the Pease International Tradeport Wastewater Treatment Facility. The facility has an average daily flow capacity of 1.2 million gallons per day but typically receives 0.75 million gallons of wastewater per day for treatment (City of Portsmouth 2006).

#### **3.3.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the Pease International Tradeport SWPPP (2011), the 157 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.3.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.3.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 157 ARW installation by Public Service of New Hampshire via a substation located on the north side of Building 153 and is distributed via underground lines. Natural gas is supplied by Unitil Corporation. Electricity consumption for CY 2012 at the 157 ARW installation was 4,271,136 kilowatt hours. Natural gas consumption for CY 2012 at the 157 ARW installation was 124,582 thousand cubic feet (157 ARW 2012a).



#### 3.3.8.5 Solid Waste Management

Municipal solid waste at the 157 ARW installation is managed in accordance with the 157 ARW Solid Waste Management Plan (157 ARW 2012a) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 157 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 157 ARW installation, recyclables are separated, and waste is transported by contract to Turnkey Landfill in Rochester, New Hampshire or other local landfill (157 ARW 2012a). Up to 83 percent of mixed containers (both debris and recyclables) is recycled, and 100 percent of metal and cardboard are recycled (Smith 2013b).

#### 3.3.8.6 Transportation

The 157 ARW installation is located within close proximity to several major highways. U.S. Route 4 is located to the north and east of the installation and runs west to Concord, New Hampshire. U.S. Route 4 intersects with New Hampshire Route 16 northeast of the installation. New Hampshire Route 16 intersects with I-95 southeast of the airport and runs the entire length of the eastern seaboard. In addition, SRs 101 and 108 are located near the installation to the south and west. Access to the installation is located at the intersection of Pease Boulevard and Arboretum Drive (157 ARW 2008a).

### 3.3.9 Hazardous Materials and Waste

#### 3.3.9.1 Hazardous Materials

Hazardous materials are used at the 157 ARW installation for aircraft operations support and maintenance, including POL management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight simulation. Types of hazardous substances found on the 157 ARW installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (157 ARW 2013c).

There are 16 ASTs that are currently on the installation that are used to store heating oil, diesel, jet fuel, motor gasoline, and high expansion foam. The majority of USTs currently at the installation are used as overflow storage tanks in conjunction with various OWSs. There is one registered 4,000-gallon UST adjacent to Building 168 in the Bulk Fuels Storage Area (157 ARW 2005).

### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 157 ARW installation in 2011. ACM identified in the insulation, floor tiles, and mastic were found in Buildings/Hangars 149, 151, 152, 153, 241, 247, 251, 252, 254, and 262 (157 ARW 2005, 2011a).

A LBP survey has not been conducted at the 157 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation (157 ARW 2005).

PCB-containing transformers were removed from the subject property in 1993. With the exception of occasionally encountering a PCB ballast, there are no known sources of PCBs at the subject property (157 ARW 2005).

### 3.3.9.2 Hazardous Waste Management

The 157 ARW Spill Prevention, Control, and Countermeasure Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (157 ARW 2012b). The 157 ARW Hazardous Waste Management plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (157 ARW 2012a).

The 157 ARW is regulated as a Small Quantity Generator of hazardous waste by the USEPA and maintains USEPA Identification Number NH8572824847. The 157 ARW is regulated as a Full Quantity Generator of hazardous waste per New Hampshire regulations. Full Quantity Generators are defined as those entities generating greater than or equal to 100 kilograms of hazardous waste a month. Although facilities that generate this amount (but no more than 2,200 pounds) of hazardous waste are considered a small quantity generator by the USEPA, the 157 ARW follows the more stringent Full Quantity Generator requirements of New Hampshire. A hazardous waste generation point is where the waste is initially created or generated. A SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the

control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are 29 SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 145, 146, 149, 157, 243, 244, 245, 168, 249, 251, 253, 254, and 256. The installation CAP consists of two outdoor hazmat storage sheds and a small portion of Hangar 253 (157 ARW 2013c).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Fourteen OWSs are located on the 157 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance areas. One 3,000-gallon concrete OWS for Building 249 failed in the 1980s and contaminated the soil and groundwater. It was replaced in 1992 with a new 1,000-gallon concrete OWS. This resulted in the institution of a ground water management zone to monitor the petroleum contaminants (see Section 3.3.4, *Soils and Water*) (157 ARW 2005).

### 3.3.9.3 Environmental Restoration Program

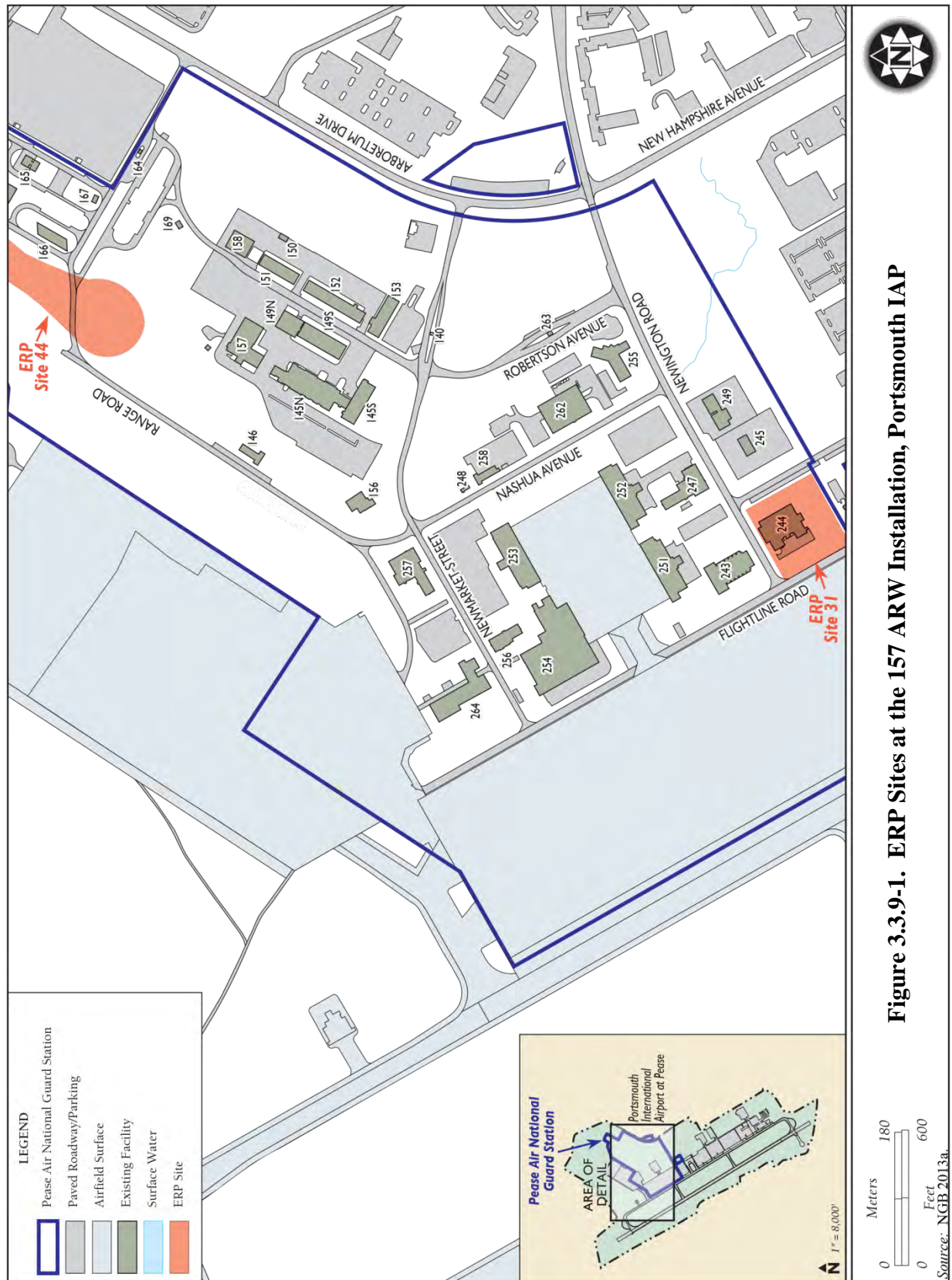
There are two closed ERP sites at the 157 ARW installation. Table 3.3.9-1 provides details for each of these sites and Figure 3.3.9-1 shows the locations.

**Table 3.3.9-1. ERP Sites within the 157 ARW Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
31	Waste Solvent Tank located at Building 244, former aircraft maintenance and repair building. Degreasing operations generated waste solvents, primarily trichloroethene. Trichloroethene was held in a 1,200-gallon UST adjacent to Building 244. Soil and groundwater sampling confirmed that the UST had leaked.	Closed
44	This site was a Paint Can Disposal Area and was a common location for burial waste flocculent generated at the industrial waste treatment plant. Soil and groundwater sampling conducted showed that contaminant concentrations did not exceed action levels.	Closed

*Note:* UST = underground storage tank

*Source:* 157 ARW 2005.



### 3.3.10 Socioeconomics

#### 3.3.10.1 Population and Employment

##### *Population*

Pease ANG is located in Portsmouth and Newington, New Hampshire, in Rockingham County. Current population data and estimates for the state of New Hampshire, Rockingham County, Town of Newington, and Portsmouth are provided in Table 3.3.10-1. From 1990 to 2010, Rockingham County's population increased by 49,378, an increase of approximately 20 percent (USCB 1990c, 2000c, 2010d).

**Table 3.3.10-1. Population Growth within the Vicinity of Pease ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
New Hampshire	1,109,252	1,235,786	1,316,470
Rockingham County	245,845	277,359	295,223
Town of Newington	990	775	753
Portsmouth	25,925	20,784	20,779

*Source:* Town of Newington 2009; USCB 1990c, 2000c, 2010d.

The 157 ARW currently supports a workforce authorization of 1,382, including 539 full-time and 843 part-time personnel (see Table 2.3-18).

##### *Employment and Earnings*

Table 3.3.10-2 presents total labor force and employment rates for New Hampshire, Rockingham County, Town of Newington, and Portsmouth. Based on 2007-2011 ACS 5-year estimates, there were 171,749 persons in the labor force (able to work) and 161,577 employed within Rockingham County, resulting in an unemployment rate of approximately 6 percent. Top employment industries in Rockingham County include 1) educational services, and health care and social assistance; 2) retail; and 3) manufacturing (USCB 2011d). Principal employers in the region include Portsmouth Naval Shipyard, UA Local 788 Marine Pipefitter, Portsmouth Regional Hospital, and Liberty Mutual Insurance (InfoGroup 2013, 157 ARW 2008a).

**Table 3.3.10-2. Employment Data (2011) within the Vicinity of Pease ANG**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
New Hampshire	743,342	696,674	46,668	6.3
Rockingham County	171,749	161,577	10,172	5.9
Town of Newington	416	414	2	0.5
Portsmouth	13,222	12,625	597	4.5

*Note:* Employment numbers include individuals in the Armed Forces.

*Source:* USCB 2011d.

### 3.3.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 53,702 students were enrolled in schools from Kindergarten through Grade 12 in Rockingham County (USCB 2011d).

### 3.3.10.3 Housing

In 2010, the number of housing units in Rockingham County was 126,709, with a vacancy rate of approximately 9 percent (USCB 2010d).

## 3.3.11 Environmental Justice and the Protection of Children

### 3.3.11.1 Minority and Low-Income Populations

Table 3.3.11-1 displays the minority, low-income, and children under age 18 within the state of New Hampshire, as well as the county and towns within the vicinity of Portsmouth IAP. Approximately 4 percent of the population of Rockingham County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 6 percent for the state of New Hampshire. The percentage of population living below the poverty level for the state of New Hampshire (approximately 8 percent) is higher than Rockingham County (approximately 5 percent) (USCB 2010d).

**Table 3.3.11-1. Population within the Vicinity of Pease ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
New Hampshire	1,316,470	80,420	6.1	105,318	8.0	287,234	21.8
Rockingham County	295,223	13,257	4.4	14,466	4.9	67,438	22.8
Town of Newington	753	28	3.7	28	3.7	130	17.3
Portsmouth	20,779	1,762	8.5	1,870	9.0	3,459	16.6

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.  
2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010d, 2011d.

The 65 dB DNL contour does not extend off the airport property; therefore, currently there are no populations, including minority or low-income populations, in the vicinity of Portsmouth IAP within the baseline DNL greater than 65 dB.

### 3.3.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Rockingham County was approximately 67,438 (22.8 percent of the population) (Table 3.3.11-1). The state of New Hampshire has a slightly lower percentage population of children compared to the counties (21.8 percent). There are no on-installation housing or facilities for children located at the 157 ARW installation. Currently there are no Kindergarten through Grade 12 off-installation schools that are exposed to DNL of 65 dB or above.



### **3.4 PITTSBURGH AIR NATIONAL GUARD STATION**

Pittsburgh ANGS, home of 171 ARW of the PA ANG, is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County. The 171 ARW installation is situated on the southeastern side of the Pittsburgh IAP, an international airport owned and operated by the ACAA.

#### **3.4.1 Noise**

To evaluate noise impacts in the vicinity of a military installation located within a commercial airport with a published FAR Part 150 Airport Noise Compatibility Study, the USAF allows for use of the FAA's INM to generate DNL noise contours. The ACAA under the FAA uses the INM computer model for generating noise contours and for Pittsburgh IAP, the FAA's INM was used. For more detailed information on the noise modeling methods see Appendix A, Section A.1.2.

##### **3.4.1.1 Baseline Operations**

This section describes the baseline conditions as approved by the ACAA. In 2006, the ACAA completed Noise Exposure Maps Update as part of the FAA's FAR Part 150 Noise Compatibility Program for Pittsburgh IAP based on operational data from a 12-month period ending February 2005. The study used the standard FAA INM program to establish noise contours based on those operations and is the FAA approved and public document for the noise compatibility program currently in effect for the airport.

Based on aircraft operations data validated in March 2013 (FAA 2013, 171 ARW 2013a), approximately 139,217 total aircraft operations occurred at Pittsburgh IAP during 2012; of those, the 171 ARW flew a total of 6,943 airfield operations with approximately 7 percent at night (approximately 5 percent of total operations at the airfield). These numbers were validated by the 171 ARW and Pittsburgh ATADs (FAA tower) report and are used as the basis for determination of KC-46A airfield operations for the Proposed Action (FAA 2013, 171 ARW 2013a).

The current FAR Part 150 data identified 321,436 total aircraft operations that occurred at Pittsburgh IAP during the 12-month period ending March 2006. Per the request of the ACAA, the current approved and published FAR Part 150 Noise Compatibility Program Update for Pittsburgh IAP is used as the baseline for this analysis (Belotti 2013). The baseline aircraft operations at the airport used for this analysis differs from the current 2012 aircraft operations

due to changes to airfield use by U.S. Air which no longer uses Pittsburgh IAP as a major commercial airline hub.

Table 3.4.1-1 summarizes the frequency of aircraft operations for Pittsburgh IAP based on information provided by base staff, flying organizations, and air traffic control personnel. An aircraft operation is counted each time an aircraft departs from the runway and each time they approach the runway. The majority of aircraft traffic includes air cargo, commercial regional jets (air taxi), and larger commercial aircraft and other based military aircraft, along with based ANG KC-135 aircraft. There are also a number of general aviation jet and non-jet and corporate aircraft based at the airfield. Although the number of aircraft operations at an airfield varies from day to day, for Pittsburgh IAP, operations are calculated for an AAD, meaning that yearly operations are averaged across all 365 days of the year. Table 3.4.1-1 reflects a total of approximately 881 aircraft operations on an AAD (321,436 divided by 365 days). Approximately 9 percent of the total operations at Pittsburgh IAP occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.4.1-1. Current Pittsburgh IAP Annual Aircraft Operations FAR Part 150<sup>1</sup>**

<i>Aircraft</i>	DEPARTURES		ARRIVALS		TOTAL <sup>2</sup>		<i>Grand Total<sup>2</sup></i>
	<i>Day</i>	<i>Night<sup>3</sup></i>	<i>Day</i>	<i>Night<sup>3</sup></i>	<i>Day</i>	<i>Night<sup>3</sup></i>	
KC-135	6,530	0	6,530	0	13,060	0	13,060
Other Aircraft <sup>4</sup>	140,683	13,505	140,683	13,505	281,366	27,010	308,376
<b>Total</b>	<b>147,213</b>	<b>13,505</b>	<b>147,213</b>	<b>13,505</b>	<b>294,426</b>	<b>27,010</b>	<b>321,436</b>

Notes: 1. Operations based on currently approved FAR Part 150.  
 2. Includes Closed Patterns (which count as two airfield operations).  
 3. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 4. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: Boeing 747, 717, and the Airbus 321.

Source: ACAA 2006.

Based on the published FAR Part 150 Study (2006), the 171 ARW KC-135 aircraft flew a total of 13,060 annual airfield operations, or an average of 36 airfield operations a day. No KC-135 operations at Pittsburgh IAP occur during environmental night in the baseline data. Approximately 4 percent of total operations at Pittsburgh IAP are accomplished by the 171 ARW KC-135 aircraft (ACAA 2006).

### 3.4.1.2 Runway and Flight Profiles

Pittsburgh IAP aircraft use VFR departures, published Standard Instrument Departures, straight in approaches, overhead approaches, IFR or radar closed patterns, and VFR closed patterns along with re-entry VFR patterns as the basic flight patterns for general aviation and military training flights and local arrival and departures. Detailed representative arrival, departure, and closed pattern flight tracks are found in the Appendix C, *Noise*.

### 3.4.1.3 Existing Noise Environment

Noise contours developed for the baseline conditions at Pittsburgh IAP are shown in Figure 3.4.1-1. The acreage within each DNL contour on and off Pittsburgh IAP property is shown in Table 3.4.1-2. Approximately 3,138 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.4.7, *Land Use*.

**Table 3.4.1-2. Acres within Baseline Noise Contours, Pittsburgh IAP**

<i>Noise Level (dB)</i>	<i>On Airport (acres)</i>	<i>Off Airport (acres)</i>	<i>Total (acres)</i>
65-70	1,331.5	128.6	1,460.1
70-75	850.7	0	850.7
75-80	468.6	0	468.6
80-85	151.5	0	151.5
Greater than 85	207.5	0	207.5
<b>Total</b>	<b>3,009.8</b>	<b>128.6</b>	<b>3,138.4</b>

Notes: dB = decibel

#### *Potential Hearing Loss*

As shown in Table 3.4.1-2, there is no property off the Pittsburgh IAP that falls within the 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

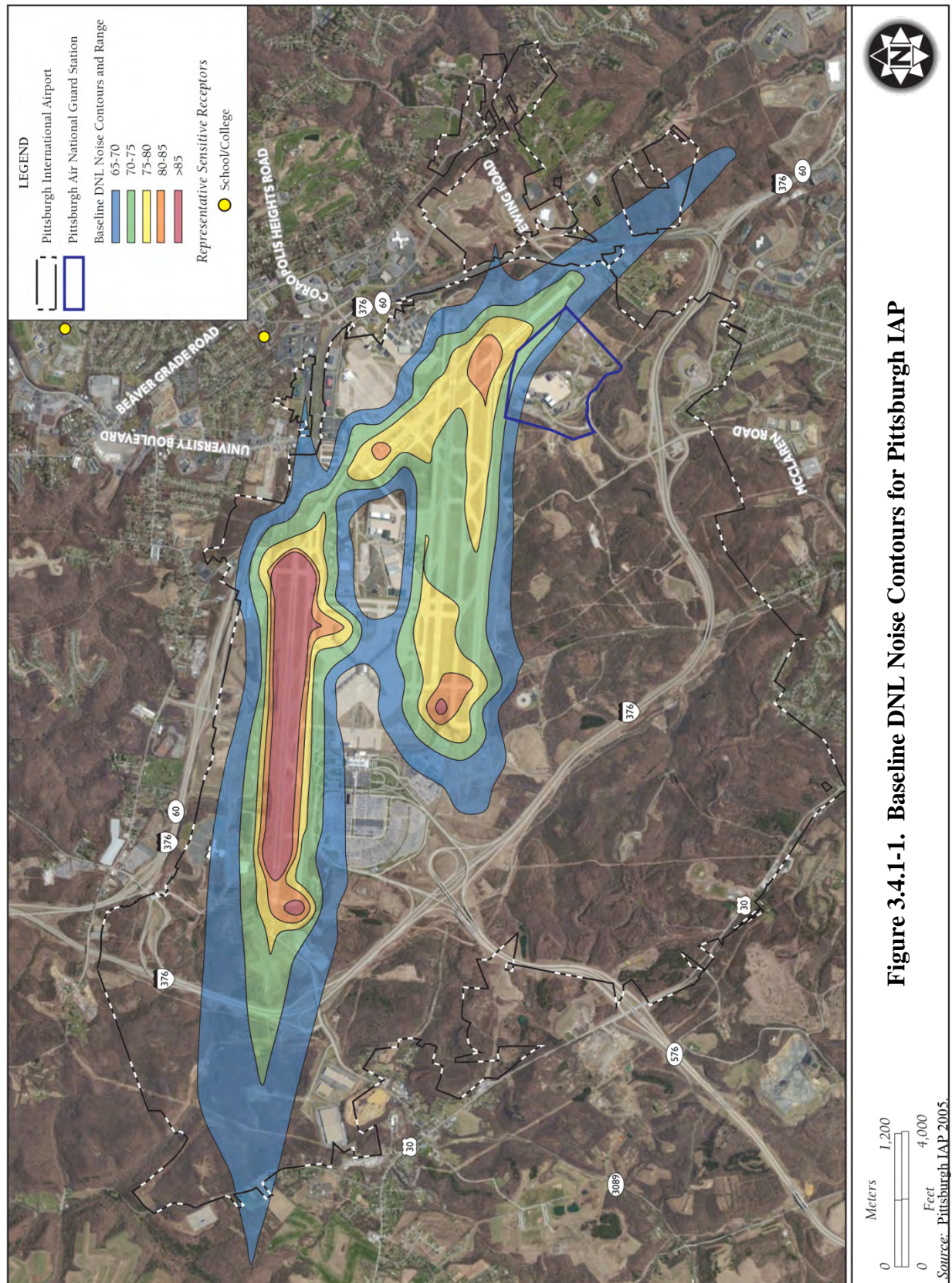
### 3.4.1.4 Pittsburgh International Airport Noise Abatement Procedures

Pittsburgh IAP has no published restrictions on flying activities but has instituted noise abatement procedures that are incorporated directly into their Air Traffic Control Operating Procedures. Procedures include departing aircraft to maintain runway heading to 1,700 feet above mean sea level (AMSL) and follow Departure Control (SkyVector 2013b).

### 3.4.1.5 Pittsburgh International Airport Noise Complaints Procedures

Currently, Pittsburgh IAP procedures for registering and logging noise complaints are through the Airport Operation's staff, who receive calls on a 24-hour basis. Calls requiring investigation and/or follow up to assure compliance with the FAR Part 150 Noise Program are submitted to the Manager of Planning Services. During 2012, the airport reported a total of 274 complaints, 259 from three specific individuals and 15 from others. Any noise complaints resulting from the 171 ARW are routed through 171 ARW operations for resolution. The number of noise complaints is not considered significant due to the large airport property and lack of urban encroachment (Belotti 2013).





### 3.4.2 Air Quality

#### 3.4.2.1 Regulatory Setting

In addition to criteria pollutants, the USEPA has defined 187 substances as HAPs. HAPs are substances that have been determined to present some level of acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion sources. HAPs are regulated for specific source categories under the USEPA's *National Emission Standards for Hazardous Air Pollutants* regulations.

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The Pennsylvania Department of Environmental Protection (PADEP) Bureau of Air Quality is the agency responsible for the regulation of air quality within the state of Pennsylvania. The state of Pennsylvania regulates air quality through the Pennsylvania Code Title 25, Article III, Chapters 121 through 145. Within Allegheny County, air quality is regulated by the Allegheny County Health Department Division of Air Quality through Article XXI Air Quality Regulations. The state of Pennsylvania has adopted the NAAQS, and has adopted additional standards regulating beryllium, fluorides, hydrogen sulfide, and settled particulate matter. Because the Proposed Action would not contribute to emissions of these pollutants, they are not considered further in this EIS. The NAAQS are summarized in Table 3.4.2-1.

Pittsburgh ANGS is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County. The USEPA has classified Allegheny County as a moderate nonattainment area for the 1997 8-hour O<sub>3</sub> NAAQS, and is classified as a marginal nonattainment area for the 2008 8-hour O<sub>3</sub> NAAQS. Allegheny County is also a nonattainment area for PM<sub>2.5</sub>. Pittsburgh is also designated as a nonattainment area for CO, but this designation applies only in high traffic areas in the central business district of the city. The region is designated attainment/unclassified area for all other criteria pollutants. Alternative #4 is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (NO<sub>x</sub> and VOCs) is 100 tpy, and the *de minimis* emission threshold for PM<sub>2.5</sub> emissions is also 100 tpy.

**Table 3.4.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	<b>NATIONAL STANDARDS<sup>a</sup></b>	
		<i>Primary<sup>b,c</sup></i>	<i>Secondary<sup>b,d</sup></i>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary

*Notes:* a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

*Source:* USEPA 2012.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

### 3.4.2.2 Climate and Meteorology

Pittsburgh is located in the southwestern corner of Pennsylvania, at the foothills of the Allegheny Mountains, where the Allegheny and Monongahela Rivers join to form the Ohio. The city's humid climate is modified slightly by its relative proximity to the Atlantic Seaboard and the



Great Lakes. The Pittsburgh area experiences extremes of all four seasons. Precipitation is distributed throughout the year, with much of the precipitation occurring as snow during the winter months (Northeast Regional Climate Center 2013c).

January is the coldest month, with an average minimum temperature of 19.9°F. July is the hottest month, with an average maximum temperature of 82.7°F. The average annual temperature is 50.3°F. The average annual precipitation in Pittsburgh is 36.9 inches (Northeast Regional Climate Center 2013c).

The average wind speed in the Pittsburgh area is 9 miles per hour. Winds are generally westerly to southwesterly during the year (Northeast Regional Climate Center 2013c).

### 3.4.2.3 Regional and Local Air Pollutant Sources

The 171 ARW of the PA ANG is based on the southwestern side of Pittsburgh IAP in Allegheny County, Pennsylvania. The surrounding area includes a mix of uses, including residential development, commercial development, and open space.

The USEPA's National Emissions Inventory includes data for the year 2008 for Allegheny County. Table 3.4.2-2 summarizes the regional emissions (stationary and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.4.2-2. Regional Emissions for Allegheny County, Pennsylvania**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	21,006	4,790	17,467	43,185	6,387	5,411
Area-Wide Source	1,196	20,270	165	29	11,969	1,613
Mobile Sources	141,851	13,231	24,496	351	1,203	1,038
<b>Total</b>	<b>164,053</b>	<b>38,291</b>	<b>42,128</b>	<b>43,565</b>	<b>19,559</b>	<b>8,062</b>

Notes: Numbers may not match precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant  
CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

Source: USEPA 2008.

### 3.4.2.4 Baseline Air Quality

Representative background air monitoring data for the 171 ARW for the period 2008-2012 are shown in Table 3.4.2-3. The closest monitoring stations to Pittsburgh IAP include three monitoring stations in Pittsburgh itself.



As shown in Table 3.4.2-3, the area has experienced several O<sub>3</sub> exceedances during the recent 5-year period. The Pittsburgh area also experienced exceedances of the 24-hour PM<sub>2.5</sub> standard. The data show that the area did not experience violations of other NAAQS.

**Table 3.4.2-3. Ambient Air Monitoring Data for the Pittsburgh Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.08	0.071	0.084	0.086	0.086
Days above federal standard (0.075 ppm)	1	0	2	3	8
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	39.7	33.3	41.5	32.1	23.1
Days above federal standard (35 µg/m <sup>3</sup> )	3	0	3	0	0
Annual Average value (µg/m <sup>3</sup> )	12.9	11.6	12.2	11.1	10.1
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	58	53	58	55	54
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	1.8	1.9	1.8	1.9	4.6
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.3	1.3	1.4	1.5	2.5
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.086	0.059	0.066	0.069	0.047
98 <sup>th</sup> Percentile (ppm)	0.066	0.049	0.051	0.058	0.043
Days above federal standard (0.100 ppm)	0	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.106	0.087	0.057	0.037	0.034
99 <sup>th</sup> Percentile (ppm)	0.062	0.061	0.035	0.023	0.022
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	0	0
Peak 24-hour value (ppm)	0.019	0.020	0.021	0.013	0.010

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.4.2.5 171<sup>st</sup> Air Refueling Wing Emissions

The 171 ARW currently flies and maintains 16 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 171 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

Emissions for the 171 ARW have been quantified in the *Final 2011 Air Emissions Inventory* (171 ARW 2013b). The inventory evaluated the emissions from the 171 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source

thresholds for the area, the major source thresholds are 50 tpy for VOCs, 100 tpy for all other criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs.

The 171 ARW does not currently hold a Title V Operating Permit, but operates under a Minor Source Operating Permit (No. 0287) issued by the Allegheny County Health Department. The 2011 Air Emissions Inventory demonstrates that total base-wide potential emissions from stationary sources are below the major source thresholds.

Stationary source emissions at the 171 ARW include emissions from combustion sources, chemical use, and small arms fire. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 171 ARW installation considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources, and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #4, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified in Table 2.3-19, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.4.2-4.

**Table 3.4.2-4. 171 ARW Baseline Emissions at Pittsburgh ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	3.42	50.69	67.79	6.14	0.33	0.33	17,082
AGE	0.01	0.01	0.10	0.00	0.00	0.00	2,395
Engine Testing	0.11	1.67	0.46	0.07	0.01	0.01	198
POVs	4.27	65.56	3.37	0.05	0.14	0.06	2,270
<b>Total Baseline Emissions</b>	<b>7.81</b>	<b>117.93</b>	<b>71.72</b>	<b>6.26</b>	<b>0.48</b>	<b>0.40</b>	<b>21,946</b>

Notes: Numbers may not match precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

Source: 171 ARW 2013b.

### **3.4.3 Safety**

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Pittsburgh IAP.

#### **3.4.3.1 Ground Safety**

##### *Fire/Crash Response*

Day-to-day operations and maintenance activities conducted by the 171 ARW are performed in accordance with applicable USAF safety regulations, published USAF Technical Orders, and standards prescribed by AFOSH requirements. Under previous NEPA analysis (171 ARW 2012a), the 171 ARW plans to move the Fire/Crash Rescue Station to Building 304. The Fire/Crash Rescue Station currently provides fire, crash, rescue, and structural fire protection for the installation and its aircraft. The 171 ARW also has arrangements with the Allegheny County Fire Department; Ohio Valley Fire Defense Mutual Aid Association; and the PADEP Emergency Response Team, Greater Pittsburgh area for mutual aid in fire protection, first responder and lifesaving services, and hazardous materials incident response (171 ARW 2009).

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas. The city of Pittsburgh, Pennsylvania utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations. Details of development and land use in the Pittsburgh IAP vicinity are included in Section 3.4.7, *Land Use*.

##### *Explosive Safety*

The 171 ARW uses a small range of munitions required for performance of their mission. The existing munitions storage capabilities on Pittsburgh ANGTS meet the requirement for small arms deployment/training ammunition and other munitions required by the 171 ARW. Three munitions storage areas (Buildings 515, 516, and 517) have quantity-distance (QD) safety zones (171 ARW 2012a).

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*Anti-Terrorism/Force Protection*

Many of the 117 ARW military facilities at Pittsburgh ANG S were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the PA ANG would incorporate these standards to the maximum extent practicable.

### 3.4.3.2 Flight Safety

*Flight Safety Procedures*

Aircraft flight operations from Pittsburgh ANG S are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures*, 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

*Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flight hours (AFSEC 2012). The 171 ARW recently completed their 53<sup>rd</sup> consecutive year and nearly 230,000 flying hours without a Class-A mishap (Pittsburgh ANG S 2013).

*Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife-aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 171 ARW has an on-going BASH program through which information and assistance is freely shared between airfield users, the Pittsburgh IAP staff, and the local air traffic controllers. Most strikes occur in August and September with small birds such as blackbirds, swallows, or larks. Serious BASH-related accidents within the immediate Pittsburgh IAP area are rare and

have never resulted in a Class A mishap (Pittsburgh ANGS 2013). The 171 ARW has recorded 69 minor BASH incidents in the airfield area from 2005 to 2012, with an average of fewer than nine bird strikes per year (Pittsburgh ANGS 2013).

#### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Airbases must establish jettison areas and procedures to minimize the impact of fuel jettisoning. Ideally, jettison areas are established at altitudes above 20,000 feet AGL, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources. AFIs cover the fuel jettison procedures, and local operating policies define specific fuel ejection areas for each base. In accordance with the AFI, Pittsburgh ANGS has established local procedures for gross weight adjustments but fuel jettisoning is an emergency procedure only and is not practiced (Pittsburgh ANGS 2013).

### **3.4.4 Soils and Water**

#### **3.4.4.1 Soils**

This area of Pennsylvania is within the Appalachian Highlands on a dissected plateau that is underlain by sedimentary rocks. There are narrow, level valleys and narrow, sloping ridgetops separated by long, steep to very steep side slopes (USDA 2006). The 171 ARW installation is surrounded by steep slopes that can exceed 25 percent in some areas. The developed areas within the installation consist of a graded hilltop leveled to accommodate aircraft facilities and a series of terraces to maximize buildable land. Relief ranges from 135 to 140 feet MSL (171 ARW 2012a).

The NRCS Soil Survey for Allegheny County, Pennsylvania identifies the following eight individual soil types at the installation:

*Atkins silt loam:* This soil is typically found on floodplains from recent alluvium derived from sandstone and shale. The rating class for building site development is considered very limited due to high flooding potential and depth to saturated zone (NRCS 2013c). Approximately 5 percent of the installation is composed of this soil type.

*Ernest silt loam, 2 to 8 percent slopes:* This soil is typically found on hillslopes from colluvium derived from shale and siltstone. The rating class for building site development is considered somewhat limited due to steep slopes and depth to saturated zone. In addition, this soil type is designated as Farmland of Statewide Importance (NRCS 2013c). Approximately 3 percent of the installation is composed of this soil type.

*Gilpin-Upshur complex, very steep:* This soil is typically found on hillslopes from residuum weathered from sandstone, siltstone, and shale. The rating class for building site development is considered very limited due to steep slope and depth to hard bedrock (NRCS 2013c). Approximately 10 percent of the installation is composed of this soil type.

*Gilpin silt loam:* This soil is typically found on hills from residuum weathered from sandstone, siltstone, and shale. The rating class for building site development is considered very limited due to steep slope and depth to hard bedrock (NRCS 2013c). Approximately 3 percent of the installation is composed of this soil type.

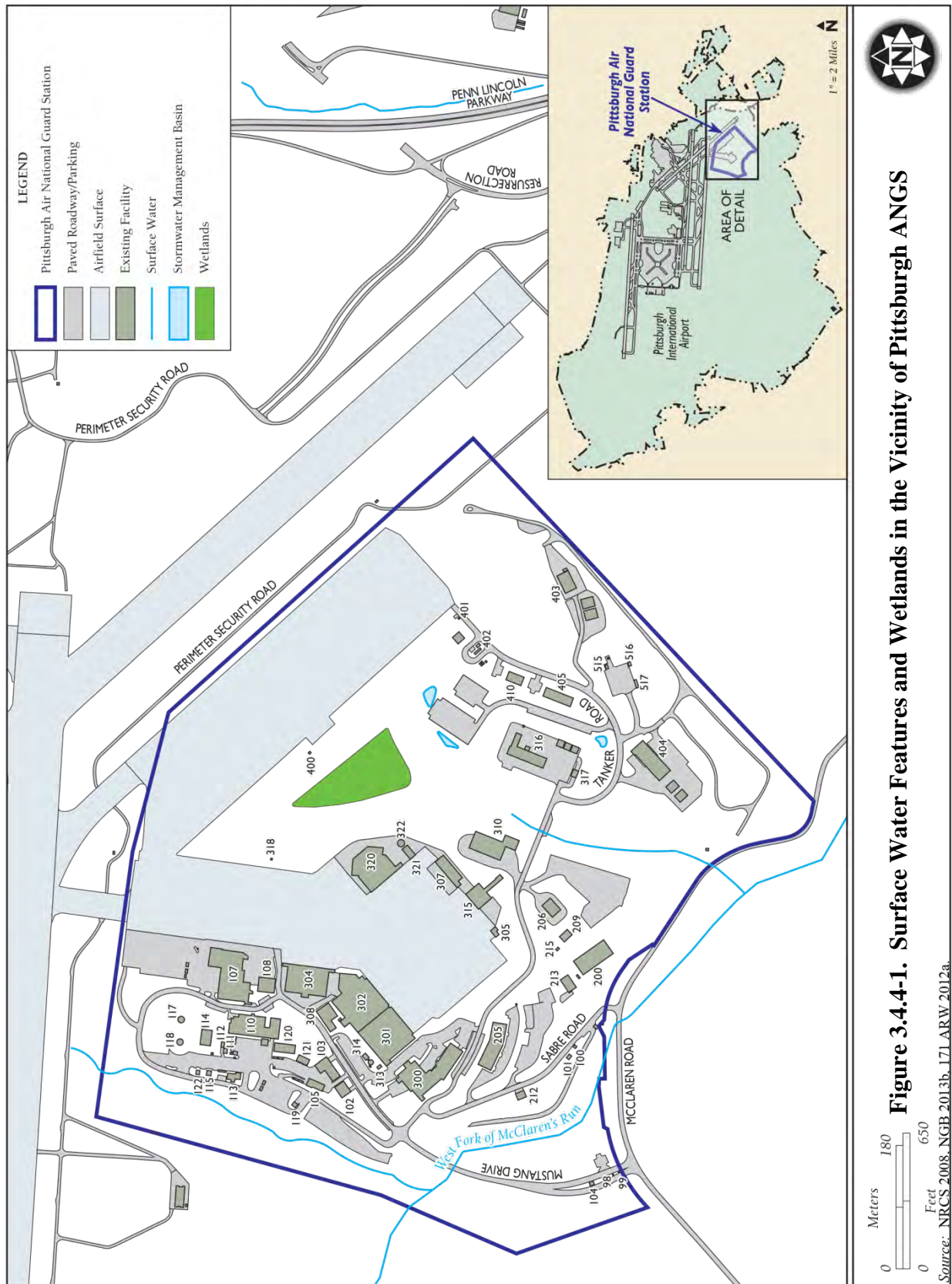
*Gilpin, Weikert, and Culleoka shaly silt loams, very steep:* This soil is typically found on hillslopes from residuum weathered from sandstone, siltstone, and shale. The rating class for building site development is considered very limited due to steep slope and depth to hard bedrock (NRCS 2013c). Approximately 3 percent of the installation is composed of this soil type.

*Urban land-Culleoka complex, gently sloping and moderately steep:* This soil consists of strongly intermingled Urban land and Culleoka soil. Urban land consists of soil from cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is not rated for this soil type (NRCS 2013c). Approximately 56 percent of the installation is composed of this soil type.

*Wharton silt loam:* This soil is typically found on hills from residuum weathered from siltstone and shale. The rating class for building site development is considered somewhat limited to very limited due to shrink-well potential, slope, and depth to saturated zone. In addition, this soil type is designated as Prime Farmland or Farmland of Statewide Importance depending upon slope (NRCS 2013c). Approximately 21 percent of the installation is composed of this soil type.

#### 3.4.4.2 Surface Water

Surface water features within the vicinity of the 171 ARW installation include McClarens Run to the southwest, a tributary of Montour Run, that ultimately discharges into the Ohio River. Surface water within the installation primarily consists of a series of man-made ditches, storm sewers, and drainage swales (Figure 3.4.4-1). Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes (171 ARW 2010a).



**Figure 3.4.4-1. Surface Water Features and Wetlands in the Vicinity of Pittsburgh ANG Station**



There are 15 stormwater outfalls on the 171 ARW installation, including an OWS outfall. Nine drainage basins receive runoff from industrial areas on the installation: SDO-001, -002, -003, -004, -006, -007, -010, -014, and -015. All outfalls ultimately discharge to McClarens Run. The nine outfalls associated with industrial activity are regulated under the Pennsylvania General Permit for Discharges of Stormwater Associated with Industrial Activity (PA-R806184). The permit is administered by the PA DEP under the auspice of the USEPA (171 ARW 2010a).

#### 3.4.4.3 Groundwater

Groundwater in this area is part of the Appalachian Plateaus aquifers. The principal coal-bearing formations are Pennsylvanian in age and consist of sequences of sandstone, shale, conglomerate, clay, coal, and minor limestone. The sandstones are the most productive aquifers, although coal beds and limestones also yield water (USGS 1995c). Historical large-scale coal mining has led to pollution issues in both groundwater and surface water in many areas by sulfur and iron exposure (PADEP 2004).

Based on topography of the installation, the direction of regional groundwater flow is to the southwest, toward McClarens Run. Site-specific groundwater flow may fluctuate based on local geology, local well use, and seasonal variations (Department of Military and Veterans Affairs 2007). The major source of groundwater near the installation is alluvial deposits in floodplains, particularly along the Allegheny and Ohio rivers (171 ARW 2012a).

#### 3.4.4.4 Floodplains

Per the FEMA Flood Insurance Rate Map for Allegheny County, Pennsylvania, Panel 302 (Map Number 42003C0302E, Effective October 4, 1995), the 171 ARW installation is located within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding (FEMA 1995).

### 3.4.5 Biological Resources

#### 3.4.5.1 Vegetation

The Pittsburgh IAP occurs within the Eastern Broadleaf Forest (Oceanic) Province. Vegetation in this region typically is characterized by a winter deciduous forest dominated by tall broadleaf trees (Bailey 1995). The majority of the 171 ARW installation is developed or actively landscaped, with approximately 15 percent containing natural vegetation. Natural vegetation is comprised of fragmented stands of deciduous forest along the southwest portion of the installation which consist of primarily sugar maple (*Acer saccharum*), black cherry (*Prunus serotina*), American elm (*Ulmus americana*), shagbark hickory (*Carya ovata*), and box elder (*Acer negundo*). In addition, small areas of shrublands occur along the edge of the forest stands

and are comprised of species such as blackberry (*Rubus* spp.), red-panicle dogwood (*Cornus racemosa*), and multiflora rose (*Rosa multiflora*) (171 ARW 2012a).

#### 3.4.5.2 Wildlife

Due to the lack of substantial pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present in the vicinity of the airport and the 171 ARW installation consists of species that are highly adapted to developed and disturbed areas. Pittsburgh ANGS is located within the Atlantic Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found within Pittsburgh IAP or its vicinity are protected under the MBTA. Common bird species found within the vicinity of the airport include Ring-Billed Gull (*Larus delawarensis*), Canada Goose (*Branta canadensis*), American Crow (*Corvus brachyrhynchos*), European Starling (*Sternus vulgaris*), Killdeer (*Charadrius wilsonia*) and Mourning Dove (*Zenaida macroura*). Other common wildlife species include white-tailed deer (*Odocoileus virginianus*), red fox (*Vulpes vulpes*), Eastern gray squirrel (*Sciurus carolinensis*), opossum (*Didelphis marsupialis*), eastern cottontail (*Sylvilagus floridanus*), raccoon (*Procyon lotor*), and woodchuck (*Marmota monax*) (171 ARW 2012a).

#### 3.4.5.3 Special Status Species

No federally listed or candidate species are known to occur within the airport or on the 171 ARW installation. The potential for several federally listed species that have been observed in Allegheny County to occur within the vicinity of the airport exists; however, there is little to no habitat for these species within the airport or the installation (171 ARW 2012a). Several state listed species have been observed within Allegheny County and have the potential to occur on or within the vicinity of the installation; however, only one of these have been observed on the installation (Torrey's Rush). Torrey's Rush (*Juncus torrei*), a Pennsylvania threatened plant species, has been identified on the installation, in the area of the mitigation wetlands (see Wetland Section below). A list of these species can be found in Appendix E. There is no critical habitat located on the installation.

#### 3.4.5.4 Wetlands

One palustrine emergent/scrub-shrub wetland occurs on the installation between the east and west aircraft parking aprons. This wetland was constructed as mitigation for the wetlands that were impacted during the construction of the east aircraft parking apron in the 1990s. This wetland is associated with headwaters of two unnamed tributaries to McClaren's Run and are most likely jurisdictional wetlands (Figure 3.4.4-1) (171 ARW 2012a).

### **3.4.6 Cultural Resources**

#### **3.4.6.1 Archaeological Resources**

A majority of the 171 ARW installation is developed with buildings and pavement. Approximately 1.2 acres in the southeast portion of the installation was determined to be relatively undisturbed. This area was intensively surveyed for cultural resources in 2011. No NRHP-eligible resources were located (171 ARW 2012b, McLearen 2011). The Pennsylvania SHPO concurred with these findings (see McLearen 2011 in Appendix B4).

#### **3.4.6.2 Architectural Resources**

All 25 architectural resources at the 171 ARW installation pre-dating the end of the Cold War era or constructed before 1990 were inventoried and evaluated for NRHP eligibility (171 ARW 2012b). None of the buildings were recommended as eligible to the NRHP.

#### **3.4.6.3 Traditional Resources**

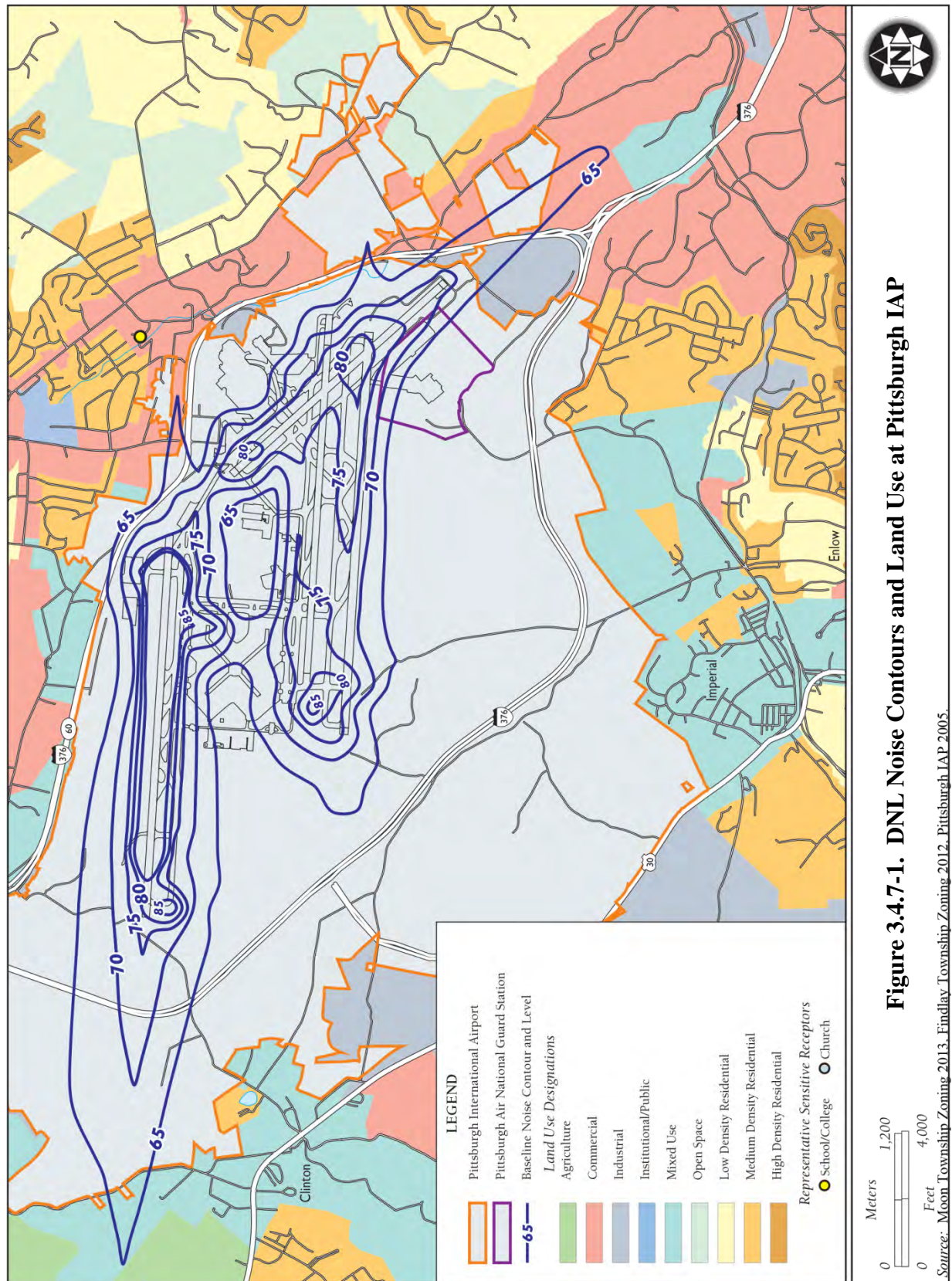
The 171 ARW installation contains no known traditional resources; however, five federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified: Cayuga Nation of New York, Onondaga Nation of New York, Seneca Nation of Indians, Tonawanda Band of Seneca Indians of New York, and Tuscarora Nation of New York.

### **3.4.7 Land Use**

The 171 ARW is located at Pittsburgh IAP, in Allegheny County, Pennsylvania. Two townships are immediately adjacent to the airport: Moon Township is north and east of the Airport, and Findlay Township is west and south of the airport. Independence Township (Beaver County), North Fayette Township, Robinson Township, and Coraopolis Township are located to the west, south, southeast, and northeast of the airport, respectively. Land uses surrounding the airport include a mixture of suburban and rural land uses including Recreation/Conservation, Commercial, Industrial, and Undeveloped (Allegheny County 2008). No houses, churches, schools or other sensitive noise receptors are located within areas exposed to DNL greater than 70 dB off-airport.

Zoning surrounding the airport generally supports compatible land use planning and provides for protection of the areas surrounding Pittsburgh IAP. Zoning codes define and establish airport hazard zones height limitations and land use restrictions within these zones. This zoning protects RPZs, details of which can be found in the Safety section of Appendix A, Section A.3.

Pittsburgh IAP exposes 128.6 acres, off-airport, to noise levels between 65 dB and 70 dB DNL. Figure 3.4.7-1 shows an overlay of the baseline noise contours onto a map displaying the existing land use in the vicinity of the airfield.



**Figure 3.4.7-1. DNL Noise Contours and Land Use at Pittsburgh IAP**

Source: Moon Township Zoning 2013, Findlay Township Zoning 2012, Pittsburgh IAP 2005.

### **3.4.8 Infrastructure and Transportation**

#### **3.4.8.1 Potable Water System**

Currently, Findlay Township Water Authority is acting as a back-up source for potable water for the 171 ARW installation due to a break in the line from the Moon Township Water Authority, which is typically the primary source of potable water for the installation. A new waterline from Moon Township is in the process of design for construction. Findlay Township buys water from Moon Township, Robinson Township, and other sources (Tower 2013a). Potable water in the area is supplied primarily from four regional groundwater aquifer wells. Moon Township pumps approximately 1.18 trillion gallons of water per year to its customers (Moon Township no date). The groundwater supply is supplemented with treated surface water from the Ohio River. In FY 2012, 4.7 million gallons of potable water were supplied to the 171 ARW installation (171 ARW 2013c).

#### **3.4.8.2 Wastewater**

The 171 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including oil/water separator discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 171 ARW installation is conveyed into the municipal sewage system, operated by Moon Township Municipal Authority. The Authority's Leonard L. Nary Wastewater Treatment plant treats water from Moon, Findlay, North Fayette, and Robinson Townships, as well as the installation. The facility has a capacity of a 6.2 million gallons per day (171 ARW 2012a).

#### **3.4.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 171 ARW *SWPPP* (2010), the 171 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.4.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.4.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 171 ARW installation by Duquesne Light Company via three single phase 667 kilovolt ampere transformers and underground power lines. Natural gas is supplied by UGI Energy Services from a single 4-inch steel line. Electricity consumption for FY 2012 at the

171 ARW installation was 5,751 megawatt hours. Natural gas consumption for FY 2012 at the 171 ARW installation was 26,880 thousand cubic feet (171 ARW 2013c).

#### **3.4.8.5 Solid Waste Management**

Municipal solid waste at the 171 ARW installation is managed in accordance with the 171 ARW Solid Waste Management Plan/Qualified Recycling Program (171 ARW 2010b) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 171 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 171 ARW installation and transported to the Allied Waste Imperial Landfill.

#### **3.4.8.6 Transportation**

The 171 ARW installation is located approximately 14 miles northwest of downtown Pittsburgh and is easily accessible from several major highways. I-79 runs in a north-south direction approximately 4 miles east of the installation. I-376/SR 60 runs in a northwest-southeast direction through the Pittsburgh IAP property and provides direct access to the airport. In addition, U.S. Highway 30, a principal arterial that runs east-west south of the airport and then takes a turn to the north running parallel to the airport on the western side, also provides regional access. McClaren Road exit off of I-376 provides direct access to the main entrance for the 171 ARW installation.

### **3.4.9 Hazardous Materials and Waste**

#### **3.4.9.1 Hazardous Materials**

Hazardous materials are used at the 171 ARW installation for aircraft and vehicle operations support and maintenance. Types of hazardous substances found on the 171 ARW installation include hydraulic fluid, waste oils, recovered fuels, spent cleaners, strippers, solvents, flammable and combustible liquids, acids, aerosols, batteries, corrosives, and paints (171 ARW 2009).

Nineteen ASTs occur on the 171 ARW installation and are used to store diesel, jet fuel, motor gasoline, aqueous film forming foam, potassium acetate, developer, dye penetrant, emulsifier,



and rinse solution. There is one 1,000-gallon UST on the installation located in the POL yard used to store reclaimed JP-8 (171 ARW 2012a).

### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 171 ARW installation in 1991. ACMs identified in the insulation, floor tiles, and mastic were found in Buildings/Hangars 102, 103, 107, 110, 201, 206, 300, 301/302, 304 (171 ARW 2012a).

A LBP survey has not been conducted at the 171 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation (171 ARW 2012a).

The 171 ARW does not maintain, operate, or own any PCB equipment or PCB-contaminated equipment and the subject property is considered PCB-free (171 ARW 2008).

### 3.4.9.2 Hazardous Waste Management

The 171 ARW Oil and Hazardous Substances Spill Prevention and Response Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (171 ARW 2012c). The 171 ARW Hazardous Waste Management Plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (171 ARW 2009).

The 171 ARW is regulated as a Large Quantity Generator of hazardous waste and maintains USEPA Identification Number PAD114942832. A hazardous waste generation point is where the waste is initially created or generated. An SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are 20 SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 103, 107, 113, 121, 213, 301, 302, 304, 307, 308, 310, 316, 320, 403, 404, and 520. The installation CAP is located in Building 501/502 (171 ARW 2009, Tower 2013b).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Fifteen OWSs are located on the 171 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance areas (171 ARW 2012c).



## 3.4.9.3 Environmental Restoration Program

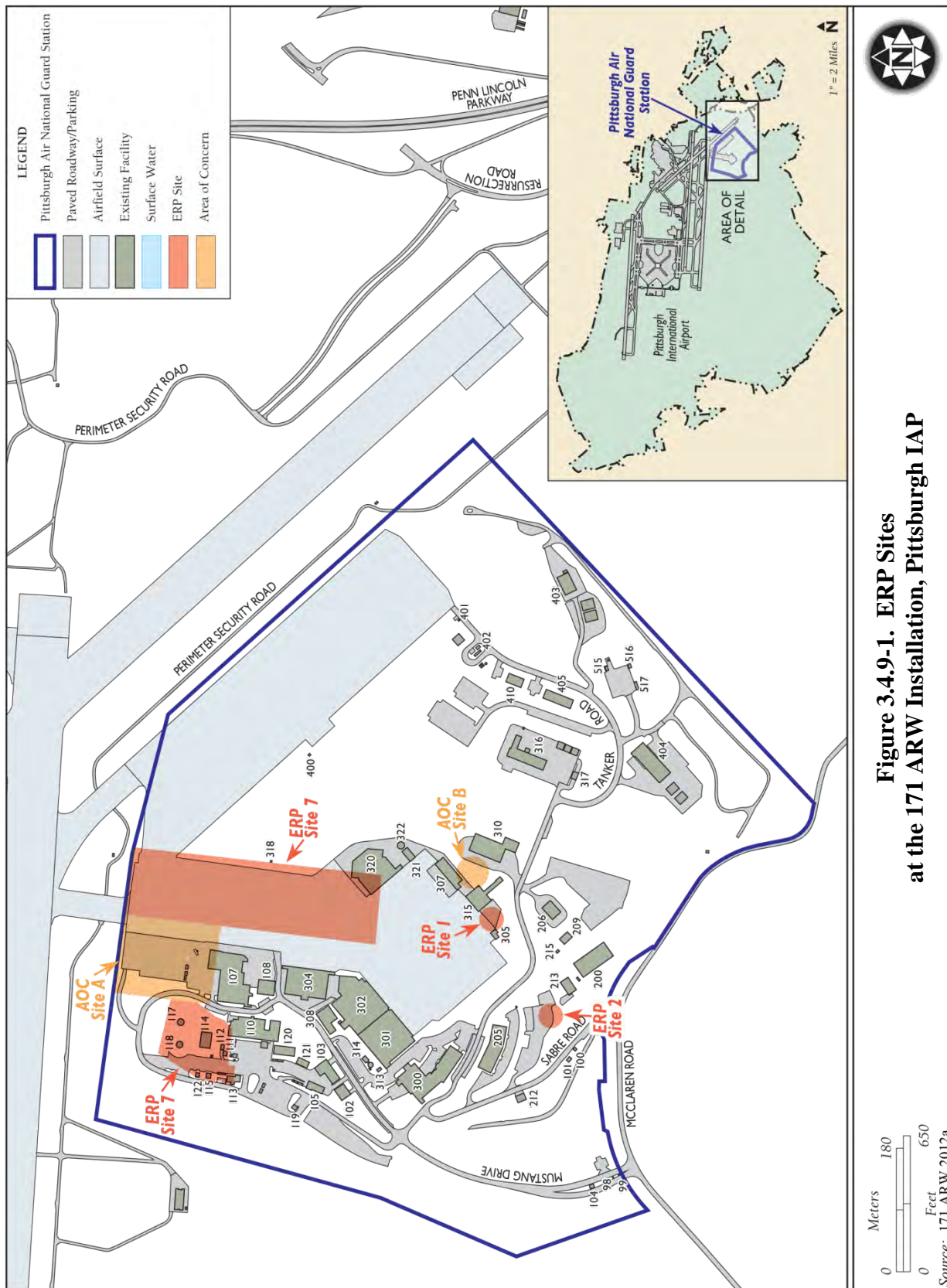
There are three closed ERP sites and two closed Areas of Concern (AOCs) at the 171 ARW installation. Table 3.4.9-1 provides details for each of these sites and Figure 3.4.9-1 shows the locations.

**Table 3.4.9-1. ERP Sites within the 171 ARW Installation**

<i>ERP/AOC Site</i>	<i>Materials of Concern</i>	<i>Status</i>
1	This site was a waste oil tank where JP-4 fuel, hydraulic, and engine oils were released from a UST. Soil and groundwater sampling performed at this site did not reveal contaminants of concern above PADEP guidelines.	Closed
2	This site was a UST for a gasoline for a motor pool area. Soil and groundwater sampling performed at this site revealed gasoline-related soil contamination at low levels. Results from a risk assessment of this area showed that contaminated soils did not pose a threat to human life or the environment.	Closed
7	This site was a POL storage area and fuel hydrant system for JP-4 fuel. Soil and groundwater sampling performed at this site did not reveal contaminants of concern above PADEP guidelines.	Closed
AOC A	This site is referred to as the Cabbage Patch Area and was used for dumping fuels, POLs, and solvents. Soil sampling results at this location did not identify contaminants in exceedance of regulatory criteria or posing a threat to human health or the environment. No further action was recommended.	Closed
AOC B	This site is referred to as the Embankment Area and was used for dumping petroleum distillate, tetrachloroethylene, methyl ethyl ketone, and other liquid wastes. Soil sampling results at this location did not identify contaminants in exceedance of regulatory criteria or posing a threat to human health or the environment. No further action was recommended.	Closed

*Notes:* ERP = Environmental Restoration Program; AOC = Area of Concern; UST = underground storage tank; PADEP = Pennsylvania Department of Environmental Protection; POL = petroleum, oil, and lubricant

*Source:* 171 ARW 2012a.



### 3.4.10 Socioeconomics

#### 3.4.10.1 Population and Employment

##### *Population*

Pittsburgh ANG is located approximately 12 miles northwest of Pittsburgh, Pennsylvania in Allegheny County. The airport ROI includes portions of Moon and Findlay Townships. Current population data and estimates for the state of Pennsylvania, Allegheny County, and Findlay and Moon Townships are provided in Table 3.4.10-1. From 1990 to 2010, Allegheny County's population decreased by 113,101, approximately 9 percent (USCB 1990d, 2000d, 2010e).

**Table 3.4.10-1. Population Growth within the Vicinity of Pittsburgh ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
Pennsylvania	11,881,643	12,281,054	12,702,379
Allegheny County	1,336,449	1,281,666	1,223,348
Findlay Township	4,500	5,145	5,060
Moon Township	19,631	22,290	24,185

Source: USCB 1990d, 2000d, 2010e.

The 171 ARW currently supports a workforce authorization of 1,306, including 393 full-time and 913 part-time personnel (see Table 2.3-24).

##### *Employment and Earnings*

Table 3.4.10-2 presents total labor force and employment rates for Pennsylvania, Allegheny County, and Findlay and Moon Townships. Based on 2007-2011 ACS 5-year estimates, there were 644,951 persons in the labor force (able to work) and 598,554 employed within Allegheny County, resulting in an unemployment rate of approximately 7 percent. Top employment industries in Allegheny County include 1) educational services, and health care and social assistance; 2) professional, scientific, and management, and administrative and waste management services; and 3) retail (USCB 2011e). Principal employers include UPMC Presbyterian Shadyside, University of Pittsburgh, the federal government, Giant Eagle Inc., and PNC Bank NA (Center for Workforce Information and Analysis 2012).

**Table 3.4.10-2. Employment Data (2011) within the Vicinity of Pittsburgh ANG**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
Pennsylvania	6,456,527	5,947,873	508,654	7.9
Allegheny County	644,951	598,554	46,397	7.2
Findlay Township	2,879	2,598	281	9.8
Moon Township	13,199	12,532	667	5.1

Note: Employment numbers include individuals in the Armed Forces.

Source: USCB 2011e.

### 3.4.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 179,072 students were enrolled in schools from Kindergarten through Grade 12 in Allegheny County (USCB 2011e).

### 3.4.10.3 Housing

In 2010, the number of housing units in Allegheny County was 589,201, with a vacancy rate of approximately 9 percent (USCB 2010e).

## 3.4.11 Environmental Justice and the Protection of Children

### 3.4.11.1 Minority and Low-Income Populations

Table 3.4.11-1 displays the minority, low-income, and children under age 18 within the state of Pennsylvania, as well as the county and townships within the vicinity of Pittsburgh IAP. Approximately 19 percent of the population of Allegheny County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 18 percent for the state of Pennsylvania. The percentage of population living below the poverty level for the state of Pennsylvania (approximately 13 percent) is slightly higher than Allegheny County (approximately 12 percent) (USCB 2010e).

**Table 3.4.11-1. Population within the Vicinity of Pittsburgh ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
Pennsylvania	12,702,379	2,296,091	18.1	1,600,500	12.6	2,792,155	22.0
Allegheny County	1,223,348	226,053	18.5	151,695	12.4	241,663	19.8
Findlay Township	5,060	198	3.9	202	4.0	1,139	22.5
Moon Township	24,185	2,473	10.2	2,080	8.6	5,169	21.4

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 American Community Survey 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the Bureau of the Census determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, person in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010e, 2011f.

Table 3.4.11-2 displays the total population, total minority population, percentage minority, total low-income population, and low-income percentages for the areas in the vicinity of Pittsburgh IAP within the baseline DNL greater than 65 dB.

**Table 3.4.11-2. Population within Baseline Noise Contours, Pittsburgh ANG<sup>1</sup>**

Noise Contour	Total Population	Minority Population	Percent Minority	Low-Income Population	Percent Low-Income <sup>2</sup>
65-70	12	0	0	0	0
70-75	0	0	0	0	0
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010f, 2011f.

In the area surrounding Pittsburgh IAP, approximately 12 people were estimated to be affected by baseline DNL between 65 dB and 70 dB. Out of that total, none are considered to be minorities or low-income populations.

#### 3.4.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Allegheny County was approximately 241,633 (19.8 percent of the population). The state of Pennsylvania has a slightly higher percentage population of children compared to the county (22 percent). There are no on-installation housing or facilities for children located at the 171 ARW installation. Currently, there are no Kindergarten through Grade 12 off-installation schools that are exposed to aircraft DNL of 65 dB or above.

### 3.5 RICKENBACKER AIR NATIONAL GUARD STATION

Rickenbacker ANG, home of the 121 ARW of the OH ANG, is located approximately 12 miles southeast of downtown Columbus, Ohio in Franklin County. The 121 ARW installation is situated on the west side of Rickenbacker IAP, an international airport operated by the CCAA.

#### 3.5.1 Noise

To evaluate noise impacts in the vicinity of a military installation located within a commercial airport with a published FAR Part 150 Airport Noise Compatibility Study, the USAF allows for use of the FAA's INM to generate DNL noise contours. The CCAA under the FAA uses the INM computer model for generating noise contours and for Rickenbacker IAP, the FAA's INM was used. For more detailed information on the noise modeling methods see Appendix A, Section A.1.2.

##### 3.5.1.1 Baseline Operations

In August 2007, the CCAA approved a Noise Compatibility Program Update as part of the FAA's FAR Part 150 Noise Compatibility Program for Rickenbacker IAP based on operational data from a 12-month period ending April 2005. The study used the standard FAA INM program to establish noise contours based on those operations and is the FAA-approved and public document for the noise compatibility program currently in affect for the airport.

Based on aircraft operations data validated in February 2013 (FAA 2012a, 121 ARW 2013a), approximately 39,436 total aircraft operations occurred at Rickenbacker IAP during 2012; of those, the 121 ARW flew a total of 6,445 airfield operations with approximately 3 percent at night (approximately 16 percent of total operations at the airfield). These numbers were validated by the 121 ARW and Rickenbacker ATADs (FAA tower) report and are used as the basis for determining airfield operations for the Proposed Action (FAA 2012a, 121 ARW 2013a).

The current FAR Part 150 data identified 67,160 total aircraft operations that occurred at Rickenbacker IAP during the 12-month period ending April 2005. Per the request of the CCAA, the current approved Final FAR Part 150 Noise Compatibility Program Update August 2007 for Rickenbacker IAP is used as the baseline for this analysis (Gwimer 2013). The baseline aircraft operations at the airport used for this analysis differs from the current 2012 aircraft operations due to changes to airfield use by AirNet Systems Cargo with significantly reduced activity, along with reductions in general aviation and other cargo aircraft (CCAA 2007).

Table 3.5.1-1 summarizes the frequency of aircraft operations for Rickenbacker IAP based on the 2007 published FAR Part 150 Study. An aircraft operation is counted each time an aircraft



departs from the runway and each time they approach the runway. The majority of aircraft traffic includes jet cargo, charter aircraft along with based ANG KC-135, C-130, and general aviation aircraft. Although the number of aircraft operations at an airfield varies from day to day, for Rickenbacker IAP, operations are calculated for an AAD, meaning that yearly operations are averaged across all 365 days of the year. Table 3.5.1-1 reflects a total of approximately 184 aircraft operations on an AAD (67,160 divided by 365 days). Approximately 40 percent of the total operations occur during environmental night (10:00 p.m. through 7:00 a.m.).

**Table 3.5.1-1. Current Rickenbacker IAP Annual Aircraft Operations FAR Part 150<sup>1</sup>**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>2</sup>		Grand Total <sup>2</sup>
	Day	Night <sup>3</sup>	Day	Night <sup>3</sup>	Day	Night <sup>3</sup>	
KC-135	6,570	0	6,205	365	12,775	365	13,140
Other Aircraft <sup>4</sup>	13,870	13,140	13,505	13,505	27,375	26,645	54,020
<b>Total</b>	<b>20,440</b>	<b>13,140</b>	<b>19,710</b>	<b>13,870</b>	<b>40,150</b>	<b>27,010</b>	<b>67,160</b>

Notes: 1. Operations based on currently approved FAR Part 150

2. Includes Closed Patterns (which count as two airfield operations).

3. Night –Between 10 p.m. and 7 a.m. for environmental night.

4. Other based military, civilian aircraft and transient aircraft (multiple type aircraft) including: Boeing 737, 747, and Airbus 300.

Source: CRAA 2007.

Based on the 2007 baseline data, the 121 ARW KC-135 aircraft flew a total of 13,140 annual airfield operations, or an average of 36 airfield operations a day. Approximately 3 percent of the total KC-135 operations occur during environmental night. Approximately 20 percent of total operations at Rickenbacker are accomplished by the 121 ARW KC-135 aircraft.

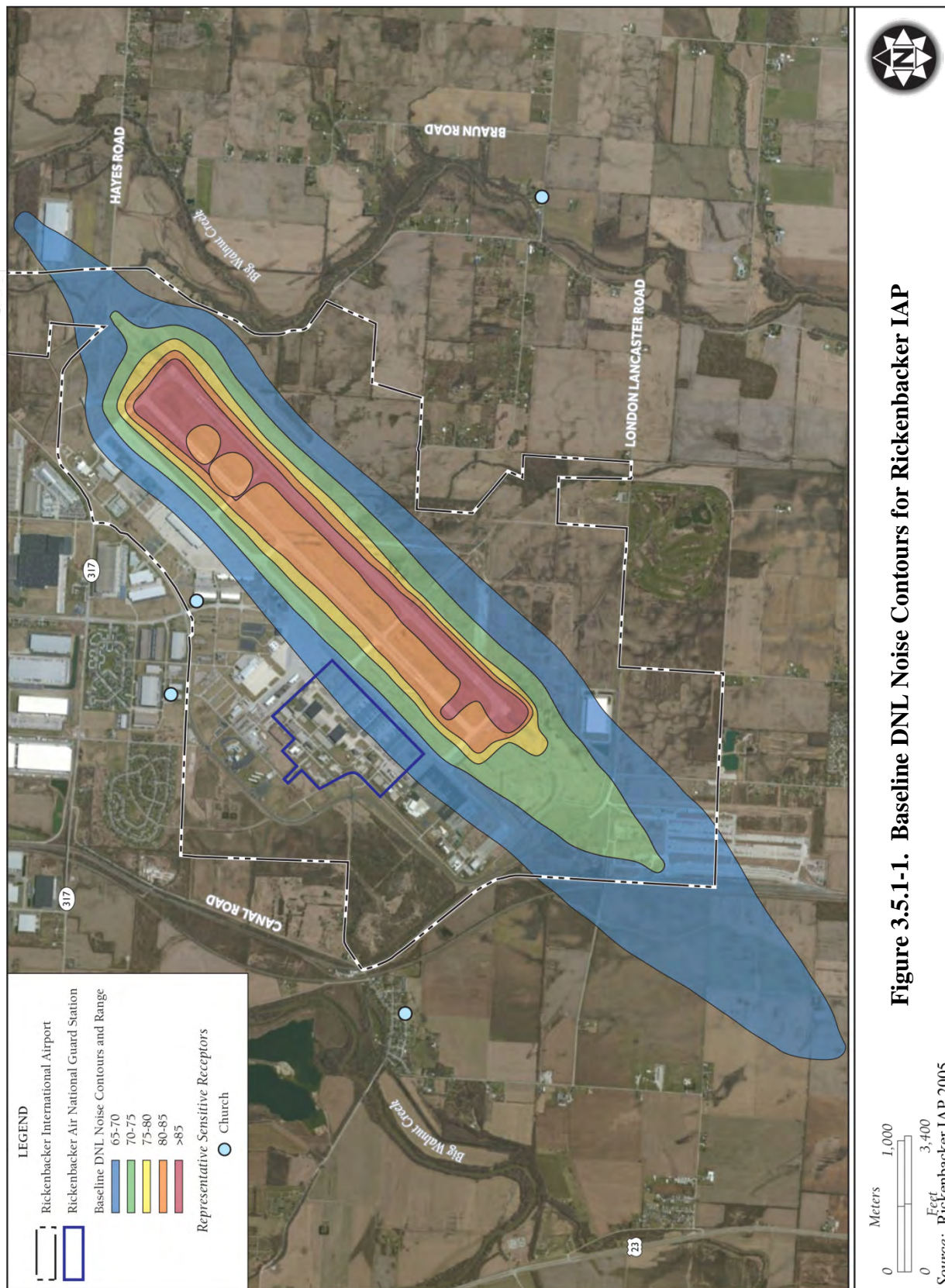
### 3.5.1.2 Runway and Flight Profiles

Rickenbacker IAP aircraft use VFR departures, published Standard Instrument Departures, straight in approaches, overhead approaches, published IFR or radar patterns, and VFR closed patterns along with re-entry VFR patterns as the basic flight patterns for local arrival and departures and flight training. Detailed representative arrival, departure, and closed pattern flight tracks are found in Appendix C, *Noise*.

### 3.5.1.3 Existing Noise Environment

Noise contours developed for the baseline conditions at Rickenbacker IAP are shown in Figure 3.5.1-1. The acreage within each DNL contour on and off Rickenbacker IAP property is shown in Table 3.5.1-2. Approximately 2,359 acres are exposed to DNL greater than or equal to 65 dB. Detailed information on off-airport land use that lies within a DNL greater than 65 dB can be found in Section 3.5.7, *Land Use*.





**Table 3.5.1-2. Acres within Baseline Noise Contours, Rickenbacker IAP**

<i>Noise Level (dB)</i>	<i>On Airport (acres)</i>	<i>Off Airport (acres)</i>	<i>Total (acres)</i>
65-70	811	417	1,228
70-75	478	0	478
75-80	156	0	156
80-85	265	0	265
Greater than 85	232	0	232
<b>Total</b>	<b>1,942</b>	<b>417</b>	<b>2,359</b>

Notes: dB = decibel

### *Potential Hearing Loss*

As shown in Table 3.5.1-2, there is no property off the Rickenbacker IAP that falls within the 80+ dB DNL noise contour; therefore, no potential hearing loss risk is currently associated with these areas.

#### 3.5.1.4 Rickenbacker International Airport Noise Abatement Procedures

Rickenbacker IAP has published certain restrictions on flying activities that could adversely affect its neighbors in an effort to reduce noise impacts while maintaining safe operations. The restrictions are published on aeronautical charts and apply to both military and civilian aircraft. The restrictions include guidance for noise abatement procedures for the airfield including noise abatement procedures in effect from 11:00 p.m. until 7:00 a.m. for departures on Runways 23L and 23R with winds 10 knots or less and arrivals on Runways 05L and 05R with winds 10 knots or less. Aircraft are advised to contact airport operations for any other noise abatement instructions or more information (SkyVector 2013c).

#### 3.5.1.5 Rickenbacker International Airport Noise Complaints Procedures

Rickenbacker IAP has an automated phone messaging system that the public can call to leave a complaint. The complaint is investigated and the individual receives a call back within 3 days. The airport planning office reviews the radar and listens to tower and ground communication to explore the noise complaints and provide a response. In 2012, Rickenbacker IAP received 17 noise complaints, 13 of which were found to be from military aircraft (primary transient military aircraft). Over the past five years, 156 noise complaints were submitted with 50 percent of those from military transient aircraft focused on the F-16, F-18, and other fighter or high performance transient aircraft (Gwiner 2013).

In addition, the 121 ARW noise complaint procedures include referring callers to the CRAA Noise Hotline at 614-239-4065. The caller may also submit noise complaints via email to the airport noise web site: [noiseabatementoffice@columbusairports.com](mailto:noiseabatementoffice@columbusairports.com) (121 ARW 2013c).

### **3.5.2 Air Quality**

#### **3.5.2.1 Regulatory Setting**

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. The Ohio Environmental Protection Agency is the agency responsible for the regulation of air quality within the state of Ohio. The state of Ohio regulates air quality through the Ohio Administrative Code, Chapters 3745-14 through 3745-114. The state of Ohio has adopted the NAAQS, and has not adopted additional more stringent state standards. The NAAQS are summarized in Table 3.5.2-1.

Rickenbacker ANGS is located approximately 12 miles south of downtown Columbus, Ohio in Franklin County. The USEPA has classified the Columbus area, including all of Franklin County, as nonattainment for the O<sub>3</sub> and PM<sub>2.5</sub> NAAQS. The region is designated attainment/unclassified area for all other criteria pollutants. The Proposed Action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for ozone precursors (NO<sub>x</sub> and VOCs) is 100 tpy, and the *de minimis* emission threshold for PM<sub>2.5</sub> emissions is also 100 tpy.

The USEPA recently promulgated a more stringent standard for lead, and has redesigned its monitoring program to address lead and identified airports for monitoring because aviation gas used in piston aircraft still contains lead. The project area is considered attainment/unclassified for lead, and lead is not used in aviation fuel used in the KC-135 or KC-46A aircraft.

**Table 3.5.2-1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	<b>NATIONAL STANDARDS<sup>a</sup></b>	
		<i>Primary<sup>b,c</sup></i>	<i>Secondary<sup>b,d</sup></i>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary
	1-hour	—	—
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—
SO <sub>2</sub>	24-hour	—	—
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—
PM <sub>10</sub>	Annual	—	Same as primary
	24-hour	150 µg/m <sup>3</sup>	Same as primary
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>
	24-hour	35 µg/m <sup>3</sup>	Same as primary
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary

*Notes:* a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.

b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.

c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.

d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.

µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

*Source:* USEPA 2012.

### 3.5.2.2 Climate and Meteorology

Columbus is located in the central portion of Ohio in an area with relatively flat terrain. Situated in central Ohio in the drainage area of the Ohio River, Columbus is located on the Scioto and Olentangy rivers; two minor streams running through the city are Alum Creek and Big Walnut Creek. Columbus's weather is changeable, influenced by air masses from central and southwest Canada; air from the Gulf of Mexico reaches the region during the summer and to a lesser extent in the fall and winter. The moderate climate is characterized by four distinct seasons. Snowfall averages around 27 inches annually (Midwest Regional Climate Center 2013).



January is the coldest month, with an average minimum temperature of 20°F. July is the hottest month, with an average maximum temperature of 86°F. The average annual temperature is 52.8°F. The average annual precipitation in Columbus is 40.0 inches (Midwest Regional Climate Center 2013).

Prevailing winds in Columbus are generally westerly to southwesterly during the year. The annual average wind speed is 8.3 miles per hour (Midwest Regional Climate Center 2013).

### 3.5.2.3 Regional and Local Air Pollutant Sources

The 121 ARW is based on the western side of Rickenbacker IAP in Franklin County, Ohio. The surrounding area to the west, south, and east of the airport is mainly agricultural, with light industrial/commercial uses to the north.

The USEPA's National Emissions Inventory includes data for the year 2008 for Franklin County. Table 3.5.2-2 summarizes the regional emissions (stationary, area-wide, and mobile) of criteria pollutants and precursor emissions for the affected areas.

**Table 3.5.2-2. Regional Emissions for Franklin County, Ohio**

	EMISSIONS, TONS/YEAR					
	CO	VOCs	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
<b>Regional Emissions</b>						
Stationary Sources	18,108	3,208	3,797	1,326	3,180	2,719
Area-Wide Source	1,124	14,821	376	11	16,452	1,764
Mobile Sources	220,807	19,397	35,271	318	1,948	1,559
<b>Total</b>	<b>240,039</b>	<b>37,426</b>	<b>39,444</b>	<b>1,655</b>	<b>21,580</b>	<b>6,042</b>

*Notes:* Numbers may not add precisely due to rounding.

Emissions of Pb are not included because the affected region contains no significant sources of this criteria pollutant.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* USEPA 2008.

### 3.5.2.4 Baseline Air Quality

Representative background air monitoring data for the Rickenbacker ANGWS for the period 2008-2012 are shown in Table 3.5.2-3. The closest monitoring stations to Rickenbacker IAP include monitoring stations in Columbus, which measure O<sub>3</sub>, CO, PM<sub>10</sub>, PM<sub>2.5</sub>, and SO<sub>2</sub> (2008 – 2009). NO<sub>2</sub> data were collected in Cincinnati, and SO<sub>2</sub> data were collected from 2010 through 2012 in Clark County. NO<sub>2</sub> data from Cincinnati may be conservative as the area is more developed than the area surrounding Rickenbacker IAP.

As shown in Table 3.5.2-3, the area has experienced several O<sub>3</sub> exceedances during the recent 5-year period; however, Franklin County has not been designated as an O<sub>3</sub> nonattainment area.

The Columbus area also experienced two exceedances of the 24-hour PM<sub>2.5</sub> standard in 2010. The data show that the area did not experience violations of other NAAQS.

**Table 3.5.2-3. Ambient Air Monitoring Data for the Columbus Area**

<i>Air Quality Indicator</i>	<i>2008</i>	<i>2009</i>	<i>2010</i>	<i>2011</i>	<i>2012</i>
<b>Ozone (O<sub>3</sub>)</b>					
Peak 8-hour value (ppm)	0.087	0.074	0.079	0.079	0.102
Days above federal standard (0.075 ppm)	2	0	2	6	8
<b>Particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	33.1	26.2	38.7	31	26.6
Days above federal standard (35 µg/m <sup>3</sup> )	0	0	2	0	0
Annual Average value (µg/m <sup>3</sup> )	12.8	11.5	13.1	11.9	10.7
<b>Particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>)</b>					
Peak 24-hour value (µg/m <sup>3</sup> )	82	64	138	86	74
Days above federal standard (150 µg/m <sup>3</sup> )	0	0	0	0	0
<b>Carbon Monoxide (CO)</b>					
Peak 1-hour value (ppm)	2.7	3.1	3.1	2.3	3.0
Days above federal standard (9 ppm)	0	0	0	0	0
Peak 8-hour value (ppm)	1.7	1.6	2.0	1.9	2.0
Days above federal standard (35 ppm)	0	0	0	0	0
<b>Nitrogen Dioxide (NO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.079	0.056	0.069	0.054	0.043
98 <sup>th</sup> Percentile (ppm)	0.058	0.050	0.054	0.046	0.040
Days above federal standard (0.100 ppm)	0	0	0	0	0
<b>Sulfur Dioxide (SO<sub>2</sub>)</b>					
Peak 1-hour value (ppm)	0.038	0.036	0.034	0.028	0.023
99 <sup>th</sup> Percentile (ppm)	0.029	0.036	0.028	0.022	0.018
Days above federal standard (0.075 ppm) <sup>1</sup>	0	0	0	0	0
Peak 24-hour value (ppm)	0.013	0.012	0.014	0.013	0.010

Notes: 1. The federal 1-hour SO<sub>2</sub> standard was adopted in 2010.

µg/m<sup>3</sup> = micrograms per cubic meter; NA = data not available; ppm = parts per million

Source: USEPA 2013a.

### 3.5.2.5 121<sup>st</sup> Air Refueling Wing Emissions

The 121 ARW currently flies and maintains 18 KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 121 ARW include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance (121 ARW 2008).

Emissions for the 121 ARW have been quantified in the *Final 2009 Air Emissions Inventory* (121 ARW 2011a). The inventory evaluated the emissions from the 121 ARW to determine its status under the Title V Federal Operating Permits program. Based on the major source thresholds for the area, the major source thresholds are 100 tpy for all criteria pollutants, and less than 10 tpy of any single HAP or 25 tpy of any combination of HAPs (121 ARW 2011a).

The 121 ARW is not required to operate under a Title V Operating Permit. The 2009 Air Emissions Inventory demonstrates that total base-wide potential emissions from stationary sources are below the major source thresholds (121 ARW 2011a).

Stationary source emissions at the 121 ARW include emissions from natural gas and fuel oil fired heating units, internal combustion engines, fuel tanks, and minor sources including chemical use, aircraft deicing, and fuel cell maintenance activities. Mobile source emissions include emissions from aircraft operations (take-offs and landings), AGE, ground vehicle operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Emissions from aircraft operations at the 121 ARW considered all based and transient aircraft. Aircraft emissions were calculated for all flight activities below the default mixing height (3,000 feet AGL). Baseline emissions also include stationary sources and emissions associated with vehicle trips associated with existing personnel and dependents. These emissions, combined with those from the other mobile sources, account for the majority of the emissions from the installation (121 ARW 2011a).

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #5, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related AGE, and POVs associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations identified baseline airfield operations identified in Table 2.3-25, utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet AGL. A discussion of the methodology for quantifying emissions is provided in Appendix A, Section A.2.3. Emissions for the baseline emissions associated with baseline operations of the KC-135 aircraft are provided in Table 3.5.2-4.

**Table 3.5.2-4. 121 ARW Baseline Emissions at Rickenbacker ANG**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR						
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>CO<sub>2e</sub></i>
KC-135 Baseline Aircraft Operations	4.63	68.57	64.35	6.38	0.34	0.34	17,742
AGE	0.01	0.02	0.15	0.00	0.01	0.01	3,333
Engine Testing	0.11	1.55	0.43	0.07	0.01	0.01	185
POVs	4.55	67.35	3.55	0.05	0.15	0.07	2,407
<b>Total Baseline Emissions</b>	<b>9.29</b>	<b>137.50</b>	<b>68.48</b>	<b>6.50</b>	<b>0.51</b>	<b>0.42</b>	<b>23,667</b>

*Notes:* Numbers might not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound

*Source:* 121 ARW 2011a.



### **3.5.3 Safety**

This section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, APZs/RPZs, explosive safety, and AT/FP. Flight safety includes discussions on flight safety procedures, aircraft mishaps, BASH, and fuel jettison requirements. The affected environment includes the airfield and local airspace surrounding Rickenbacker IAP.

#### **3.5.3.1 Ground Safety**

##### *Fire/Crash Response*

ARFF services at Rickenbacker ANG S are available on a 24-hour basis. Upon notification of an in-flight or ground emergency, the crash and rescue services personnel would coordinate emergency services. ARFF equipment and personnel at Rickenbacker ANG S meet USAF requirements (Headquarters AMC and NGB 2013b).

##### *Accident Potential Zone/Runway Protection Zone*

Development restrictions associated with RPZs are intended to preclude incompatible land use activities from being established in these areas. The city of Columbus, Ohio utilizes the FAA's airport land use compatibility guidelines, and as such, the RPZs have allowed development to be compatible with airport operations. Details of development and land use in the Rickenbacker IAP vicinity are included in Section 3.5.7, *Land Use*.

##### *Explosive Safety*

No QD arcs exist at Rickenbacker IAP as there are no storage facilities of any hazardous materials on the installation (Headquarters AMC and NGB 2013b).

##### *Anti-Terrorism/Force Protection*

Many of the military facilities at the 121 ARW installation at Rickenbacker ANG S were constructed before AT/FP considerations became a critical concern. Thus, under current conditions, many facilities do not comply with all current AT/FP standards. However, as new construction occurs and as facilities are modified, the 121 ARW would incorporate these standards to the maximum extent practicable.

### 3.5.3.2 Flight Safety

#### *Flight Safety Procedures*

Aircraft flight operations from Rickenbacker ANG S are governed by standard flight rules. Specific safety requirements are contained in standard operating procedures that must be followed by all aircrews operating from the airfield (AFI 11-2KC-135V3, *Flying Operations, C/KC-135 Operations Procedures*, 2010) to ensure flight safety. While having aircraft in close proximity during air refueling is inherently dangerous, refueling mishaps are rare. Emergency separation procedures are established and practiced by both tanker and receiver aircrews.

#### *Aircraft Mishaps*

KC-135 aircraft (all models) have flown more than 14,750,000 hours since the aircraft entered the USAF inventory in 1957. Over that period, 83 Class A mishaps have occurred and 64 aircraft have been destroyed (specific statistics for mishaps during refueling are not recorded). This results in a Class A mishap rate of 0.56 per 100,000 flight-hours, and an aircraft destroyed rate of 0.43 per 100,000 flying hours (AFSEC 2012). The last Class A mishap of a 121 ARW aircraft at the Rickenbacker airfield was in 2002 (Buzzard 2013).

#### *Bird/Wildlife Aircraft Strike Hazard*

The USAF BASH Team maintains a database that documents all reported bird/wildlife-aircraft strikes. Historic information across the USAF for the past 40 years indicates that 39 USAF KC-135 aircraft have been destroyed and 33 fatalities have occurred from bird/wildlife aircraft strikes, with the last Class A mishap occurring in 2010 (AFSEC 2013).

The 121 ARW has an on-going BASH program through which information and assistance is freely shared between airfield users, the Rickenbacker IAP staff, and the local air traffic controllers. Serious BASH-related accidents within the immediate Rickenbacker IAP area are unusual and have never resulted in a Class A mishap (Buzzard 2013). The 121 ARW has recently recorded 21 minor BASH incidents in 2010, 19 in 2011, and 13 in 2012, and an average over 8 years of 22 incidents (Buzzard 2013).

#### *Fuel Jettison*

For use in emergency situations, the KC-135 aircraft have the capability to jettison fuel and reduce aircraft gross weight for flight safety. Airbases must establish jettison areas and procedures to minimize the impact of fuel jettisoning. Ideally, jettison areas are established at

altitudes above 20,000 feet AGL, off published federal airways, avoiding urban areas, agricultural regions, and water supply sources

The primary fuel jettison area for the 121 ARW is within the Buckeye MOA, and above 20,000 feet AGL (121 ARW 2011b). The aircrew would follow fuel jettisoning procedures in AFI 11-2KC135, C/KC-135 Operations Procedures.

### **3.5.4 Soils and Water**

#### **3.5.4.1 Soils**

This area of Ohio is within the Columbus Valley, which was formed by glaciers and has relatively level to gently rolling terrain. This area is characterized by limited relief except near streams, glacial moraines, or resistant bedrock (USDA 2006). The 121 ARW installation is located on relatively flat improved land with relief ranging from 734 to 744 feet MSL (121 ARW 2010).

The NRCS Soil Survey for Franklin County, Ohio identifies the following two individual soil types at the installation:

*Kokomo-Urban land complex.* This soil, typically found in shallow depressions and drainages, is composed of silty and clayey till. The rating class for building site development is considered very limited due to ponding, shrink-swell potential, and depth to saturated zone (NRCS 2013d). Approximately 20 percent of the installation is composed of this soil type.

*Crosby-Urban land complex, 0 to 2 percent slopes.* This soil consists of strongly intermingled Urban land and Crosby soil. Urban land consists of soil from cut/fill sites used for buildings, paved roads, parking lots, and other areas of urban development. The rating class for building site development is not rated for this soil type (NRCS 2013d). Approximately 80 percent of the installation is composed of this soil type.

#### **3.5.4.2 Surface Water**

The 121 ARW installation is located within the Scioto River Watershed that encompasses over 6,510 square miles within the state of Ohio (USEPA 2013e) (Figure 3.5.4-1). The Scioto River Watershed drains a very diverse landscape from rural to dense urban environments and covers portions of Crawford, Delaware, Franklin, Hardin, Logan, Madison, and Union counties. The Scioto River originates near Roundhead in Hardin County, running south through central Ohio before emptying into the Ohio River at the confluence in Portsmouth, Ohio (Mid-Ohio Regional Planning Commission 2012).

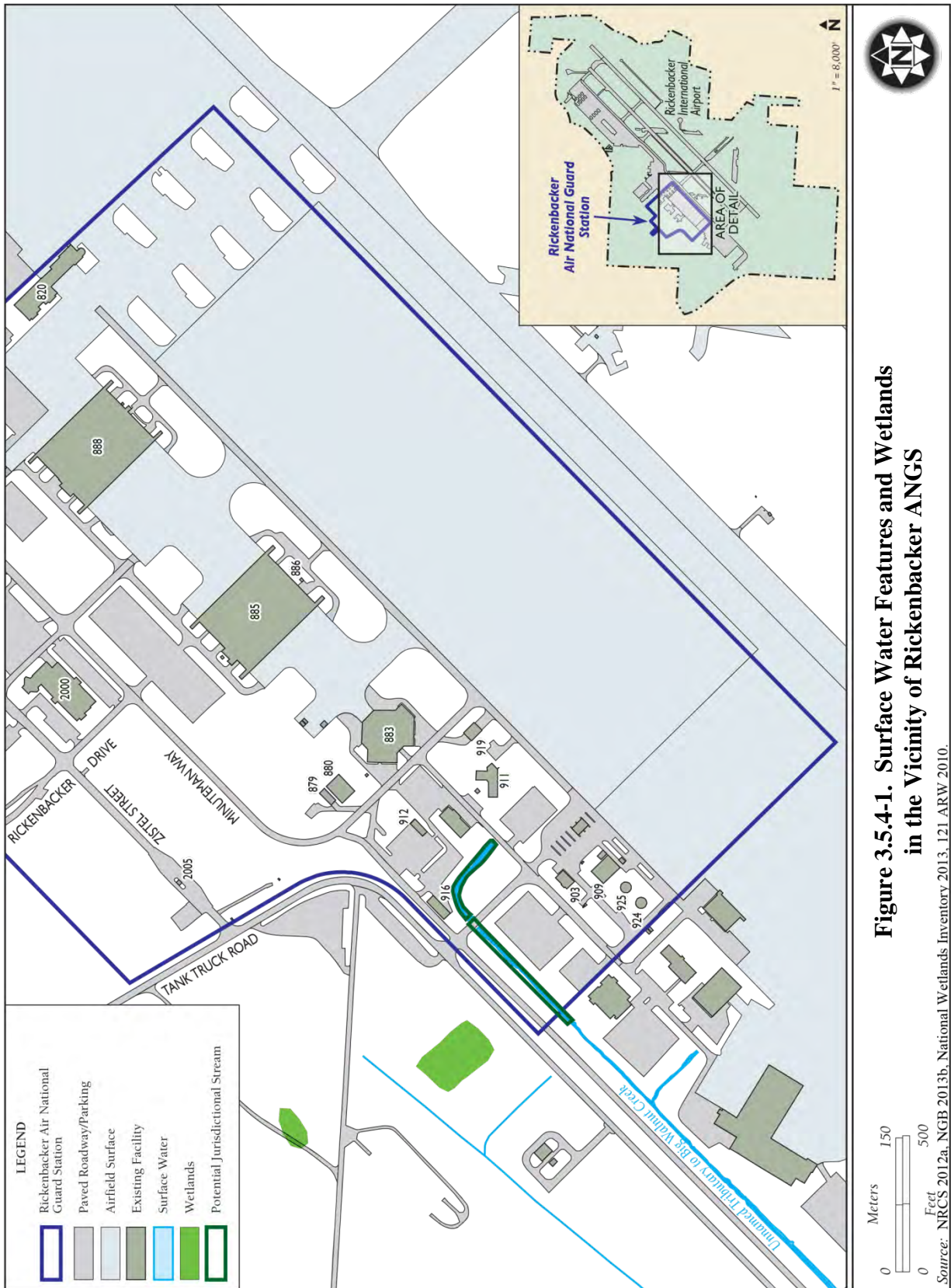
Surface water features within the vicinity of the 121 ARW installation include Scioto River and Big Walnut Creek to the east and Walnut Creek to the west. Surface water within the installation primarily consists of a series of man-made ditches, storm sewers, and drainage swales. Drainage of the developed area is typified by overland flow to storm drain inlets and basins connected by a network of underground pipes.

There are two primary drainage areas on the installation, SDO-014 and SDO-601. Both outfalls, SDO-014 and -601, exit the installation via the SDO-014 drainage ditch that discharges into an unnamed tributary that ultimately converges with the Big Walnut Creek. These two outfalls are regulated under the Ohio Industrial Stormwater General Permit (OHR000005). The permit is administered by the Ohio Environmental Protection Agency under the auspice of the USEPA (121 ARW 2009).

#### 3.5.4.3 Groundwater

Groundwater in this area is part of the Central Lowland Aquifer Province. Central Lowland aquifers are generally comprised of unconsolidated sand and gravel deposits and consolidated sandstone, limestone, and dolomite. The unconsolidated sand and gravel deposits, which are collectively called the surficial aquifer system, supply more than 50 percent of the fresh groundwater withdrawn in the Central Lowland Province, and are primarily glacial in origin (USGS 1995d).

Three aquifers have been identified beneath the 121 ARW installation: the upper water-bearing zone, the intermediate aquifer, and the deep aquifer. The upper water-bearing zone is found beneath all portions of the installation, with the top of the water table typically less than 10 feet below ground surface. Groundwater flow direction and gradient in the upper zone is controlled primarily by surface topography, including the configuration of the drainage system and the locations of the creeks in the area. A north/south trending groundwater divide is located in the central portion of the installation. Groundwater west of this divide flows southwest toward Big Walnut Creek. Groundwater east of the divide flows southeast toward Little Walnut Creek (121 ARW 2010).



The intermediate and deep aquifers are confined. The intermediate aquifer is the shallowest aquifer capable of supporting a water supply adequate for domestic use. It is present beneath the installation at depths of between 60 and 100 feet below ground surface with a west and west southwest gradient. The deep aquifer lies at depths of between 130 and 210 feet below ground surface, where it meets a shale bedrock layer. The gradient of the deep aquifer is west and west southwest (121 ARW 2010).

#### 3.5.4.4 Floodplains

A majority of the installation lies within the FEMA Flood Insurance Rate Map for Franklin County, Ohio, Panel 437 (Map Number 39049C0437K, Effective June 17, 2008) within an area designated as Zone X. The designation Zone X are areas determined to be outside the 0.2 percent annual chance flood (500 year flood), indicating areas of minimal flooding. The northern portion of the installation lies within Panel 433 (Map Number 39049C0433K) also determined to be Zone X (FEMA 2008).

### 3.5.5 Biological Resources

#### 3.5.5.1 Vegetation

The Rickenbacker IAP occurs within the ecotone between the Eastern Broadleaf Forest Continental and Oceanic Provinces. Vegetation in this region typically is characterized by deciduous forests dominated by tall broadleaf trees often with a drought-resistant oak-hickory association in the western portion of the province. Dominant trees within these forests include white oak (*Quercus alba*), red oak (*Quercus rubra*), black oak (*Quercus velutina*), bitternut hickory (*Carya cordiformis*), and shagbark hickory (*Carya ovata*) (Bailey 1995). The majority of the airport is developed or actively landscaped, with little natural vegetation or habitat remaining. A few small, hardwood forested areas occur near the southwest, south, and east sides of the 121 ARW installation.

#### 3.5.5.2 Wildlife

Due to the lack of substantial pockets of native vegetation, high noise levels, and human activities at and surrounding the airport, wildlife habitat is limited. As a result, the majority of wildlife present at the airport and the 121 ARW ANGTS consists of species that are highly adapted to developed and disturbed areas. Rickenbacker ANGTS is located within the Mississippi Flyway, one of four major North American corridors for migratory birds. The majority of the bird species found at Rickenbacker IAP or its vicinity are protected under the MBTA. Common bird species include Turkey Vultures (*Cathartes auru*), Rock Pigeons (*Columbia livia*), House Sparrows (*Passer domesticus*), Red-tailed Hawks (*Buteo jamaicensis*), Rough-legged Hawks

(*Buteo lagopus*), Great Horned Owls (*Bubo virginianus*), Barn Owls (*Tyto alba*), Screech Owls (*Otus asio*), American Goldfinch (*Carduelis tristis*), Killdeer (*Charadrius vociferous*), Blue Jay (*Cyanocitta cristata*), Horned Lark (*Eremophila alpestris*), Barn Swallow (*Hirundo rustica*), European Starling (*Sturnus vulgaris*), and Mourning Dove (*Zenaida macroura*). Other common wildlife species observed in or near the airport include white-tailed deer (*Odocoileus virginianus*), woodchuck (*Marmota monax*), eastern gray squirrel (*Sciurus carolinensis*), and spring frog (*Hyla* sp.) (121 ARW 2010, 2011c).

#### 3.5.5.3 Special Status Species

No federally listed or candidate species are known to occur within the airport or on the 121 ARW installation. The potential for several federally listed species to occur within Franklin County within the vicinity of the airport exists; however, there is little to no habitat for these species within the airport or the installation (USFWS 2005). One state endangered species, the Northern Harrier (*Circus cyaneus*), was observed during a 2004 survey of the airport. However, no nesting habitat (i.e., shrubby thickets) occurs within the airport boundaries. Several other state listed species have been observed within Franklin County and have the potential to occur on or within the vicinity of the installation; however, none of these have been observed on the installation. A list of these species can be found in Appendix E. There is no critical habitat located on the installation (Ohio Department of Natural Resources 2012; USFWS 2005, 2010).

#### 3.5.5.4 Wetlands

A formal wetland delineation was conducted on the 121 ARW installation in 2005. This delineation identified only one jurisdictional stream in the northwest corner of the installation. This stream is an unnamed tributary to Big Walnut Creek and has a small wetland fringe immediately adjacent estimated to be 0.05 acre. No other jurisdictional wetlands or waters of the U.S. were identified within the installation boundaries (121 ARW 2010, OH ANG 2006) (see Figure 3.5.4-1).

A small drainage ditch is located near the intersection of Second Street and Tank Truck Road, as shown in Figure 3.5.4-1. This ditch is approximately 30 feet wide and flows to the northwest and eventually drains to Big Walnut Creek via a network of ditches. Although this ditch has not been surveyed, it is similar to other ditches (including the one surveyed during the 2005 delineation) on and around the airport and it is therefore likely a jurisdictional stream (121 ARW 2010, OH ANG 2006).



### **3.5.6 Cultural Resources**

#### **3.5.6.1 Archaeological Resources**

The entire 121 ARW installation at Rickenbacker has been intensively surveyed for archaeological resources. Three archaeological sites have been recorded on the installation. Sites 33FR2652 and 33FR2653 are both isolated prehistoric artifacts found in disturbed soil contexts (National Guard Bureau 2008). These sites are not considered eligible to the NRHP and the Ohio SHPO has concurred (see Snyder 2007 in Appendix B4). Site 33FR2844 was discovered in 1985 during excavation for a new building foundation. It was described as a multi-component archaeological site consisting of two historic burials with associated historic coffin materials, a historic dump, and a prehistoric lithic scatter. The site was determined eligible for inclusion on the NRHP (Ohio ANG 2011).

#### **3.5.6.2 Architectural Resources**

Eighteen buildings within the 121 ARW property pre-dating the end of the Cold War-era (pre-1990) were inventoried in 2006. Two hangars (Hangars 885 and 888) are considered eligible for listing in the NRHP under criterion A and criterion C (121 ARW 2011d). The remaining 16 buildings are not eligible for listing in the NRHP. The Ohio Historic Preservation Office has concurred with these eligibility determinations (121 ARW 2011d, Snyder 2007).

#### **3.5.6.3 Traditional Resources**

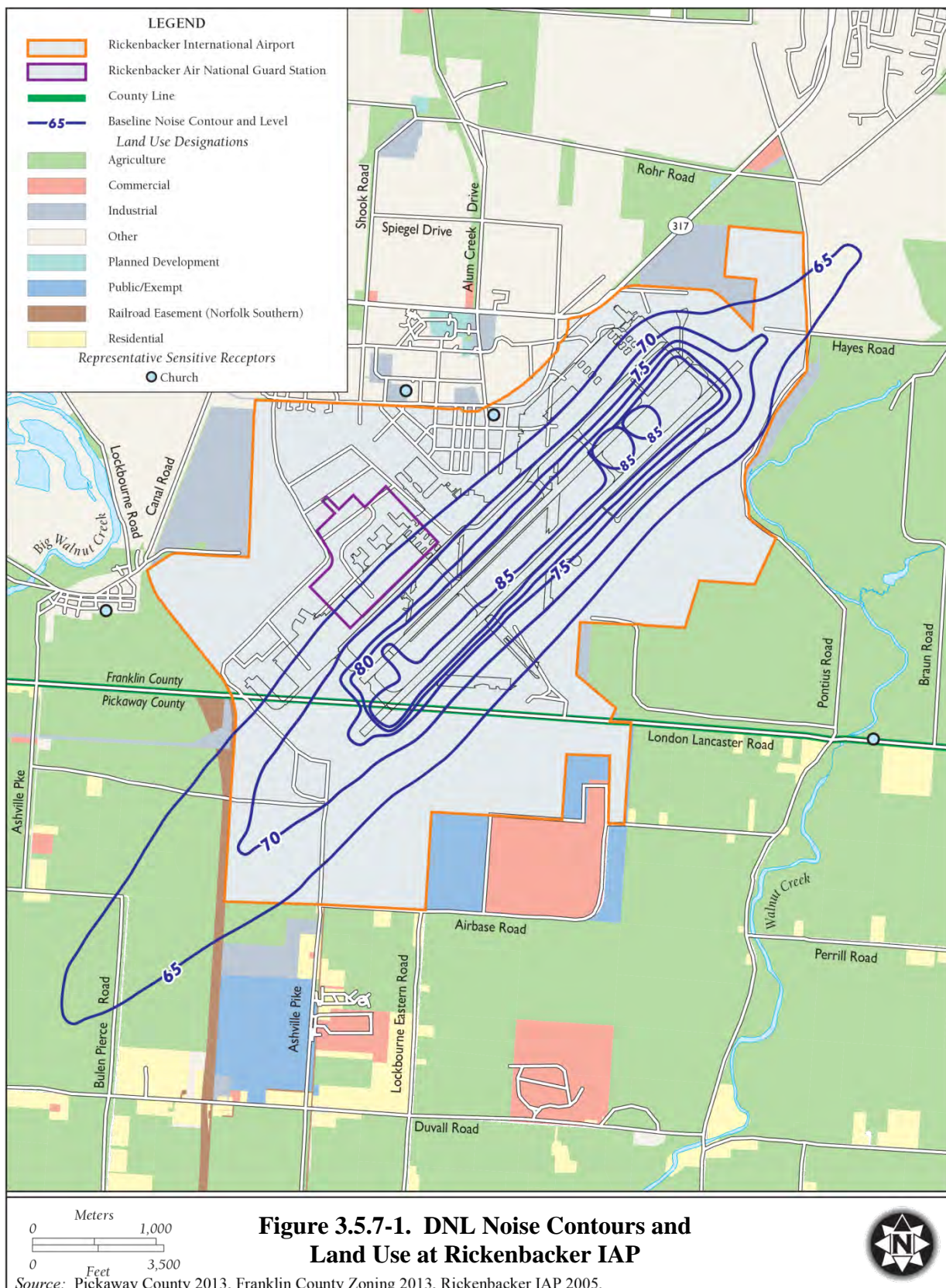
The 121 ARW installation contains no known traditional resources; however, 13 federally-recognized Tribes that are historically, culturally, and linguistically affiliated with the area have been identified: Citizen Potawatomi Nation, Delaware Nation, Prairie Band of Potawatomi Nation, Eastern Shawnee Tribe of Oklahoma, Forest County Potawatomi Community, Hannahville Indian Community, Miami Tribe of Oklahoma, Ottawa Tribe of Oklahoma, Peoria Tribe of Indians Oklahoma, Pokagon Band of Potawatomi Indians, Shawnee Tribe, Turtle Mountain Band of Chippewa Indians of North Dakota, and Wyandotte Nation.

### **3.5.7 Land Use**

Rickenbacker ANGSC operates as a tenant activity of Rickenbacker IAP, which operates military, commercial, and cargo flights. The entire airport occupies 4,342 acres and is located 10 miles south of the central business district of Columbus, Ohio, near the village of Lockbourne in southern Franklin County and the northernmost part of Pickaway County.

Zoning surrounding the airport generally supports compatible land use planning and provides for protection of the areas surrounding Rickenbacker IAP. Comprehensive Land Use plans adopted by Franklin and Pickaway Counties guide long-term planning. Hamilton Township land use codes define and established airport hazard zones, height limitations, and land use restrictions within these zones. This zoning protects RPZs from incompatible land use. Detailed descriptions of RPZs can be found in the Safety section of Appendix A, Section A.3. Land use in the areas surrounding the airfield is predominantly Agricultural/Open Space interspersed with pockets of single-family residential parcels. Commercial use dominates along the northwest boundary of the airfield in Hamilton Township. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB and 70 dB DNL off-airport noise contour areas (CRAA 2007).

Figure 3.5.7-1 is an overlay of the baseline noise contours onto a map displaying the existing land use in the vicinity of the installation. The impact of baseline airfield activities on surrounding communities in these areas is limited. Current noise levels between 65 dB DNL and 70 dB DNL expose off-base areas of Agricultural and Industrial to the southwest in Pickaway County and to a lesser degree to the northeast of the airport in Franklin County. Both land use designations are considered compatible uses under Federal Interagency Committee on Urban Noise (FICUN) standards found in Appendix A, Section A.7 (CRAA 2007).



### **3.5.8 Infrastructure and Transportation**

#### **3.5.8.1 Potable Water System**

Potable water for the 121 ARW installation is provided by the Franklin County Parsons Avenue Water Treatment Plant operated by the City of Columbus (121 ARW 2010). Potable water in the area is supplied primarily from the regional groundwater aquifer wells. The City of Columbus Water Division pumps approximately 190 trillion gallons of water per year to its customers. The groundwater supply is supplemented with treated surface water from the Scioto River and the Big Walnut Creek (Franklin County Department of Sanitary Engineering 2010). In CY 2012, 1.8 trillion gallons of potable water was supplied to the 121 ARW installation (121 ARW 2013d).

#### **3.5.8.2 Wastewater**

The 121 ARW installation generates wastewater from sanitary, stormwater, and industrial processes, including OWS discharge, wash rack discharge, floor wash-down, latrines, sinks, and showers. Wastewater generated within the 121 ARW installation is conveyed into the municipal sewage system, operated by the City of Columbus to the Columbus Southerly Wastewater Treatment Plant. The facility has a capacity of 114 million gallons per day but typically receives 96 million gallons of wastewater per day for treatment (City of Columbus n.d.).

#### **3.5.8.3 Stormwater**

A high percentage of the active administrative and industrial areas of the installation are paved or roofed, resulting in high runoff rates during precipitation events. As described in the 121 ARW SWPPP (2009), the 121 ARW installation has a stormwater drainage conveyance system typified by overland flow to catch basins, inlets, surface drains, underground pipes, culverts, ditches, and swales that discharge to receiving waters (see Section 3.5.4, *Soils and Water*) or other municipal separate storm sewer systems. The stormwater drainage system has been designed to safely collect and transport surface water runoff from storm events to prevent flooding within the installation and is a separate system from the wastewater (sewage) system.

#### **3.5.8.4 Electrical and Natural Gas Systems**

Electricity is supplied to the 121 ARW installation by South-Central Power via an aboveground, 46,000-volt primary power line that was recently buried on the northern half of the installation. Natural gas is supplied by Columbia Gas of Ohio via main lines ranging in size from 0.5 inch to 4 inches in diameter. Electricity consumption for CY 2012 at the 121 ARW installation was 4,999,752 kilowatt hours. Natural gas consumption for CY 2012 at the 121 ARW installation was 219,801 hundred cubic feet (121 ARW 2013d).

### 3.5.8.5 Solid Waste Management

Municipal solid waste at the 121 ARW installation is managed in accordance with the *121 ARW Solid Waste Management Plan* (121 ARW 2013e) and guidelines specified in AFI 32-7042, *Waste Management* (2009). This AFI incorporates, by reference, the federal standard for solid waste regulations contained within 40 CFR, Subtitle D, *Non-hazardous Waste*, and other applicable federal regulations, AFIs, and DoD Directives. In general, AFI 32-7042 establishes the requirement for installations to have a solid waste management program that incorporates the following: a solid waste management plan; procedures for recycling, diversion, handling, storage, collection, and disposal of solid waste; recordkeeping and reporting; and pollution prevention.

The 121 ARW installation generates solid waste in the form of office trash, non-hazardous industrial wastes, normal municipal waste, and construction debris. These nonhazardous solid wastes are collected in dumpsters located throughout the 121 ARW installation and transported to the Franklin County Landfill.

### 3.5.8.6 Transportation

The 121 ARW installation is located within close proximity to several major highways. I-70 runs in an east-west direction approximately 8 miles north of the installation. I-270 runs in a northwest-southeast direction approximately 4 miles north of the installation and provides regional access to Rickenbacker IAP and the Rickenbacker ANG. SR 317 provides direct access to Rickenbacker IAP. The principal access route to the airport is Alum Creek Drive, a four-lane arterial road that intersects I-70 and I-270, linking the airport to the regional ground transportation network. U.S. Highway 23, a principal arterial that runs north-south approximately 3 miles west of the airport and intersects I-270, also provides regional access. This highway intersects with Groveport Road, an arterial that provides access to the airport.

Rickenbacker Drive provides vehicle access to the road network and main cantonment area of the installation. The secondary entrance to the installation, Gate N-5, is typically used only by contractors (e.g., delivery of supplies by truck) to access the installation. This gate enters the installation off Tank Truck Road on the west side of the installation. Tank Truck Road connects to Zistel Street, which also connects with Rickenbacker Drive.

## 3.5.9 Hazardous Materials and Waste

### 3.5.9.1 Hazardous Materials

Hazardous materials are used at the 121 ARW installation for aircraft operations support and maintenance, including POL management and distribution, liquid fuels maintenance, transportation maintenance, vehicle paint, power production, machine shop operations, and flight

simulation. Types of hazardous substances found on the 121 ARW installation include strippers, batteries, spent cleaners, aerosols, paints, solvents, waste oils, hydraulic fluid, flammable and combustible liquids, acids, corrosives, and recovered fuels (121 ARW 2008). The primary storage facility for hazardous materials on the installation is in Building 872 (121 ARW 2006).

Sixteen ASTs are located on the 121 ARW installation and are used to store propylene glycol, gasoline, diesel, jet fuel, used oil, and used hydraulic oil. USTs were previously used at the installation to store kerosene, diesel, fuel oil, waste oil, jet fuel, gasoline, hydraulic fluid, and liquid propane. All USTs were removed from the 121 ARW installation in 1994 (121 ARW 2006).

#### *Toxic Substances*

Regulated toxic substances typically associated with buildings and facilities include asbestos, LBP, and PCBs. An asbestos survey was performed at the 121 ARW installation in 1995. ACM identified in the insulation, floor tiles, and mastic were found in Buildings 846 and 872 (121 ARW 2006).

A LBP survey has not been conducted at the 121 ARW installation. Any buildings on the installation constructed prior to 1978 are presumed to contain LBP and would be tested for LBP prior to demolition or renovation. Lead abatement was conducted in 2004 at Hangars 885 and 888 (121 ARW 2006).

The 121 ARW installation is permitted by the Nuclear Regulatory Commission for use of radioactive material in chemical agent monitoring devices (Permit No. OH-30567-01/00AFP). These devices are returned to the manufacturer for repair and disposal (121 ARW 2006).

The 121 ARW does not maintain, operate, or own any PCB equipment or PCB-contaminated equipment and the subject property is considered PCB-free (121 ARW 2006).

#### **3.5.9.2 Hazardous Waste Management**

The 121 ARW Oil and Hazardous Substances Spill Prevention and Response Plan contains the governing regulations for spill prevention and describes specific protocols for preventing and responding to releases, accidents, and spills involving oils and hazardous materials (121 ARW 2012). The 121 ARW Hazardous Waste Management plan outlines procedures for controlling and managing hazardous wastes from the point where they are generated until they are disposed. In addition, it includes guidance for compliance with all federal, state, and local regulations pertaining to hazardous waste (121 ARW 2008).

The 121 ARW is regulated as a Small Quantity Generator of hazardous waste and maintains USEPA Identification Number OH0000553829. A hazardous waste generation point is where



the waste is initially created or generated. An SAP is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP. There are 15 SAPs (where a waste is initially accumulated) identified at the installation in Buildings/Hangars 888, 2000, 883, 885, 872, and 846. The installation CAP is located in Building 872 (121 ARW 2008).

OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. There are currently five OWSs located on the 121 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance areas (121 ARW 2006).

### 3.5.9.3 Environmental Restoration Program

There is one active ERP site and five closed sites located on the 121 ARW installation. Table 3.5.9-1 provides details for each of these sites and Figure 3.5.9-1 shows the locations.

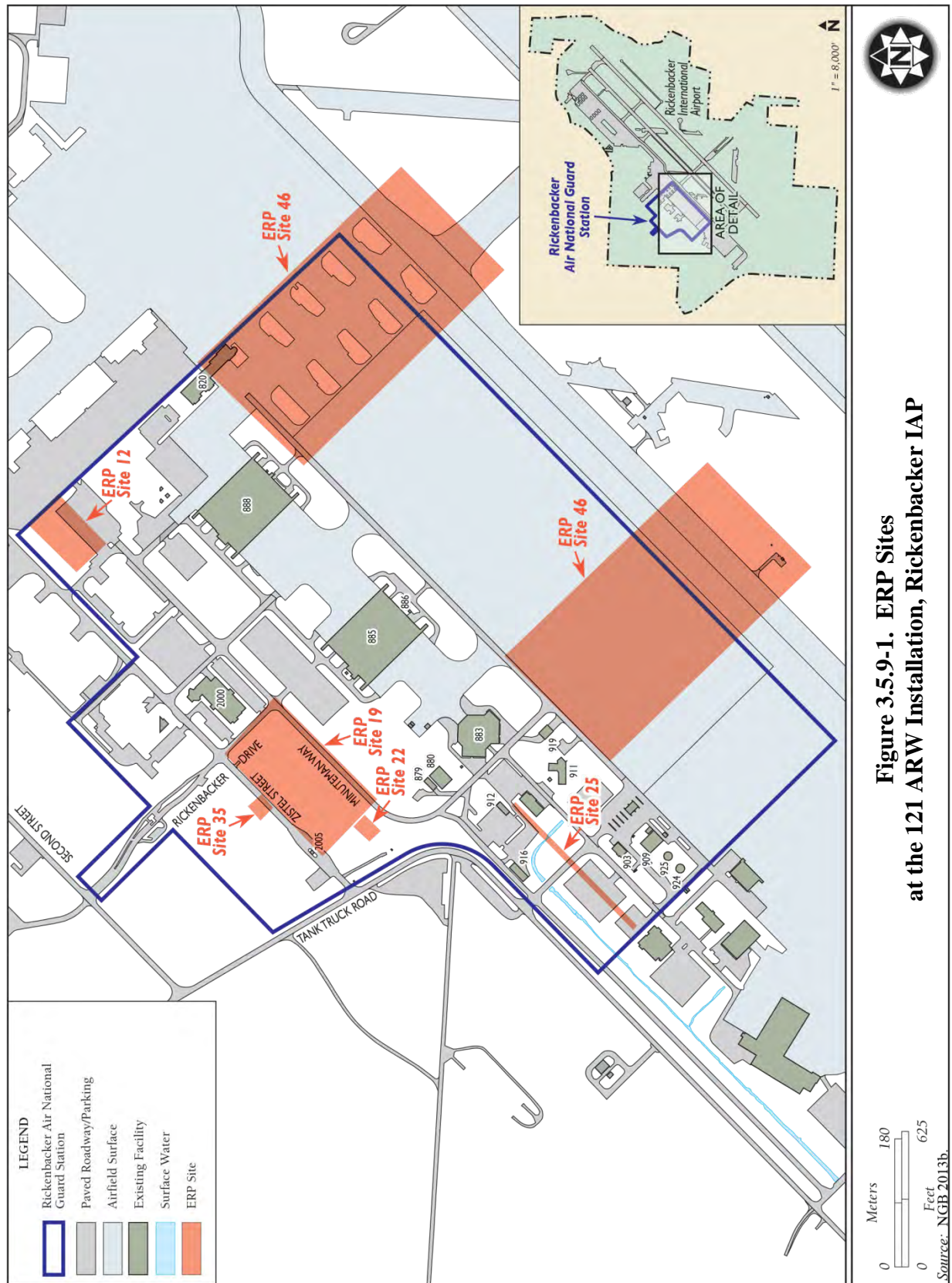
**Table 3.5.9-1. ERP Sites within the 121 ARW Installation**

<i>ERP Site</i>	<i>Materials of Concern</i>	<i>Status</i>
12	Old drum storage area that continued until 1984. Some drums contained methyl ethyl ketone, solvents, and paint strippers. Investigations determined that groundwater on the northwest side of the site was contaminated with chlorinated solvents. Groundwater remediation was performed to reduce contaminant concentrations below detection limits. In 1995 the southeast portion of the site was paved to create a parking lot for Building 887. In 1996, soils and grass were placed on the remaining portion of the site.	Active
46	Formerly known as AOC A. This site was investigated as part of a jet fuel pipeline investigation. Tier 1 and Tier 2 Bureau of Underground Storage Tank Regulation investigations were conducted and petroleum contamination levels were found to be below Bureau of Underground Storage Tank Regulation limits. Therefore, it was determined that remedial actions were not necessary.	Closed
19	Known as the North Coal Pile, this location was a concrete pad used for holding up to 6,000 tons of coal soaked in fuel oil. Arsenic, cadmium, chromium, mercury, lead, and nickel were detected in the groundwater underneath the site and polynuclear aromatic hydrocarbons were found in the soil and sediments.	Closed
22	This site was located behind the heating plant and adjacent to the former North Coal Pile and consisted of a concrete pad for drum storage. The concrete pad was removed and an interim remedial action was conducted to remove and treat the contaminated soils.	Closed
25	This includes all of the open drainage ditches throughout the installation which have had spills and leaks of hazardous materials and petroleum products discharged into them in the past. VOCs, semi-volatile organic compounds, pesticides, and metals were detected at several sites out of 51 sediment sampling locations.	Closed
35	Former UST that was removed in 1991.	Closed

*Notes:* AOC = Area of Concern; VOC = volatile organic compound; UST = underground storage tank

*Source:* 121 ARW 2006, 2010.





### 3.5.10 Socioeconomics

#### 3.5.10.1 Population and Employment

##### *Population*

Rickenbacker ANG is located approximately 12 miles southeast of downtown Columbus in Franklin County. Current population data and estimates for the state of Ohio, Franklin, and Pickaway counties, Groveport and Lockbourne Villages, and Hamilton, Harrison, and Madison Townships are provided in Table 3.5.10-1. From 1990 to 2010, Franklin County's population increased by 201,977, an increase of approximately 21 percent. Pickaway County grew by 7,443 between 1990 and 2010, an increase of approximately 15 percent (USCB 1990e, 2000e, 2010g).

**Table 3.5.10-1. Population Growth within the Vicinity of Rickenbacker ANG**

<i>Area</i>	<i>1990 Census</i>	<i>2000 Census</i>	<i>2010 Census</i>
Ohio	10,847,115	11,353,140	11,536,504
Franklin County	961,437	1,068,978	1,163,414
Pickaway County	48,255	52,727	55,698
Groveport Village <sup>1</sup>	2,948	3,865	5,363
Lockbourne Village <sup>1</sup>	N/A	280	237
Hamilton Township	9,746	7,950	8,260
Harrison Township	5,292	6,424	7,593
Madison Township	18,749	21,243	23,509

*Notes:* 1990 census data was not available for this village.

N/A = not available

*Source:* USCB 1990e, 2000e, 2010g.

The 121 ARW currently supports a workforce authorization of 1,497, including 442 full-time and 1,055 part-time personnel (see Table 2.3-30).

##### *Employment and Earnings*

Table 3.5.10-2 presents total labor force and employment rates for Ohio, Franklin and Pickaway counties, and Groveport and Lockbourne Villages. Based on 2007-2011 ACS 5-year estimates, there were 632,774 persons in the labor force (able to work) and 580,359 employed within Franklin County, resulting in an unemployment rate of approximately 8 percent. Labor force estimates for Pickaway County include 25,074 persons, with 23,184 employed, resulting in an unemployment rate of approximately 7 percent. Top employment industries in Franklin County include 1) educational services, and health care and social assistance; 2) retail; and 3) professional, scientific, and management, and administrative and waste management services (USCB 2011g). Principal employers include state of Ohio, The Ohio State University, JP Morgan Chase, Nationwide, and Ohio Health (Franklin County 2010). Top employment industries in Pickaway County include 1) educational services, and health care and social

assistance; 2) manufacturing; and 3) retail (USCB 2011g). Principal employers include ALSO Metals Corporation, Berger Health System, Circle Plastics/TriMold LLC, Circleville City Schools, and DuPont (Pickaway Progress Partnership 2013).

**Table 3.5.10-2. Employment Data (2011) within the Vicinity of Rickenbacker ANG<sup>1</sup>**

<i>Area</i>	<i>Labor Force</i>	<i>Employed</i>	<i>Unemployed</i>	<i>Unemployment Rate (%)</i>
Ohio	5,883,960	5,338,072	545,888	9.2
Franklin County	632,774	580,359	52,415	8.3
Pickaway County	25,074	23,184	1,918	7.6
Groveport Village	2,973	2,842	131	4.4
Lockbourne Village	139	112	27	19.4
Hamilton Township	4,089	3,404	685	16.8
Harrison Township	3,710	3,443	267	7.2
Madison Township	12,473	11,612	861	6.9

*Note:* 1. Employment numbers include individuals in the Armed Forces and are from the 2007-2011 American Community Survey 5-Year Estimates.

*Source:* USCB 2011g.

### 3.5.10.2 Schools

According to the 2011 ACS enrollment 5-year estimates, 195,535 students were enrolled in schools from Kindergarten through Grade 12 in Franklin County. In Pickaway County, 10,658 students were enrolled in schools from Kindergarten through Grade 12 (USCB 2011g).

### 3.5.10.3 Housing

In 2010, the number of housing units in Franklin County was 525,186, with a vacancy rate of approximately 10 percent. In the Pickaway County in 2010, there were a total of 21,275 housing units with a vacancy rate of approximately 7 percent (USCB 2010g).

## 3.5.11 Environmental Justice and the Protection of Children

### 3.5.11.1 Minority and Low-Income Populations

Table 3.5.11-1 displays the minority, low-income, and children under age 18 within the state of Ohio, as well as the counties, villages, and townships within the vicinity of Rickenbacker IAP. Approximately 31 percent of the population of Franklin County is composed of minorities (i.e., an ethnic or racial group with a distinctive presence in a community), compared to approximately 17 percent for the state of Ohio. Pickaway County has a lower proportion of minorities (5.5 percent) than Franklin County or the state (USCB 2010g).

The percentage of population living below the poverty level for the state of Ohio (approximately 15 percent) is the lower than Franklin County (approximately 17 percent), but higher than Pickaway County (approximately 13 percent) (USCB 2010g).

**Table 3.5.11-1. Population within the Vicinity of Rickenbacker ANG<sup>1</sup>**

<i>Geographic Area</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>	<i>Children Under Age 18</i>	<i>Percent Children</i>
Ohio	11,536,504	1,997,067	17.3	1,707,403	14.8	2,730,751	23.7
Franklin County	1,163,414	357,797	30.8	202,434	17.4	278,542	23.9
Pickaway County	55,698	3,043	5.5	7,296	13.1	13,157	23.6
Groveport Village	5,363	962	17.9	493	9.2	1,271	23.7
Lockbourne Village	237	5	2.1	14	5.8	58	24.5
Hamilton Township	8,260	621	7.5	942	11.4	1,897	23.0
Harrison Township	7,593	266	3.5	1,496	19.7	2,141	28.2
Madison Township	23,509	3,856	16.4	2,092	8.9	5,953	25.3

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Source:* USCB 2010g.

Currently there are no residential populations, including minority or low-income populations, located within the vicinity of Rickenbacker IAP within the baseline DNL greater than 65 dB or above.

### 3.5.11.2 Protection of Children

In 2010, the number of children under the age of 18 living in Franklin County was approximately 278,542 (approximately 24 percent of the population). In 2010, the number of children under the age of 18 living in Pickaway County was approximately 13,157 (approximately 24 percent of the population) (Table 3.5.11-1). The state of Ohio has a similar percentage population of children compared to the counties (approximately 24 percent). There are no on-installation housing or facilities for children located at the 121 ARW installation. Currently there are no schools exposed to DNL of 65 dB or above.

## **CHAPTER 4 ENVIRONMENTAL CONSEQUENCES**

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The resource analyses presented in this chapter are based on an examination of potential effects that the various alternatives, including the No Action Alternative may have on existing environmental conditions. The alternatives are described in Chapter 2, and the existing environmental conditions for each resource are described in Chapter 3. This chapter examines the potential environmental consequences for each of the resource areas in the same sequence as presented in Chapter 3. The sections that follow present an evaluation of potential impacts within the specific ROI as a result of implementation of each of the alternatives using the analytical methodology presented in Appendix A.

### **4.1 ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION**

#### **4.1.1 Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #1 are considered and compared with current conditions to assess potential impacts. Details of the methodologies used for this section can be found in Appendix A, Section A.1.2.

The DNL noise contours for Forbes ANGTS were generated using the NOISEMAP computer model and represent the most current noise data available for establishing baseline conditions and for which to analyze changes to the noise environment in the Forbes ANGTS ROI. DNL noise contours for the KC-46A under Alternative #1 were also generated using NOISEMAP through the removal of all KC-135 operations and the insertion of the proposed KC-46A operations using the substitute KC-46A noise data and flight profile data provided by Air Force Civil Engineer Center (AFCEC) and applying the data to the current KC-135 flight tracks and operational procedures.

##### **4.1.1.1 Aircraft Noise**

Under Alternative #1, 12 KC-46As would be based at Forbes ANGTS, replacing the current 12 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135. Aircrews associated with the KC-46A would continue



to practice closed patterns, including tactical procedures; however, most tactical procedures would be accomplished in the simulator and at other locations away from Forbes Field Airport.

Under Alternative #1, the 190 ARW would have an increase in flying hours generating an increase in annual airfield operations by 4,110 from 10,452 to 14,562 operations (a 39 percent increase). Aircraft operations per average busy flying day (arrivals and departures [3.64] and closed patterns [16.64]) would increase under Alternative #1 to 4.94 arrivals and departures and 23.1 closed patterns/day. The percentage of 190 ARW annual aircraft operations occurring during environmental night (10 p.m. to 7 a.m.) would remain at the same 15 percent as under baseline conditions. The total number of operations flown by all other aircraft at Forbes Field Airport would not change from previously identified airfield activities (Table 4.1.1-1). There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

**Table 4.1.1-1. Forbes Field Airport Annual Aircraft Operations with Proposed KC-46A**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	6,322	959	6,118	1,163	12,440	2,122	14,562
Other Aircraft <sup>3</sup>	6,848	241	6,848	241	13,696	482	14,178
<b>Total</b>	<b>13,170</b>	<b>1,200</b>	<b>12,966</b>	<b>1,404</b>	<b>26,136</b>	<b>2,604</b>	<b>28,740</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft); example aircraft include: L-1011, MD-80, Lear 35, and HH-60.

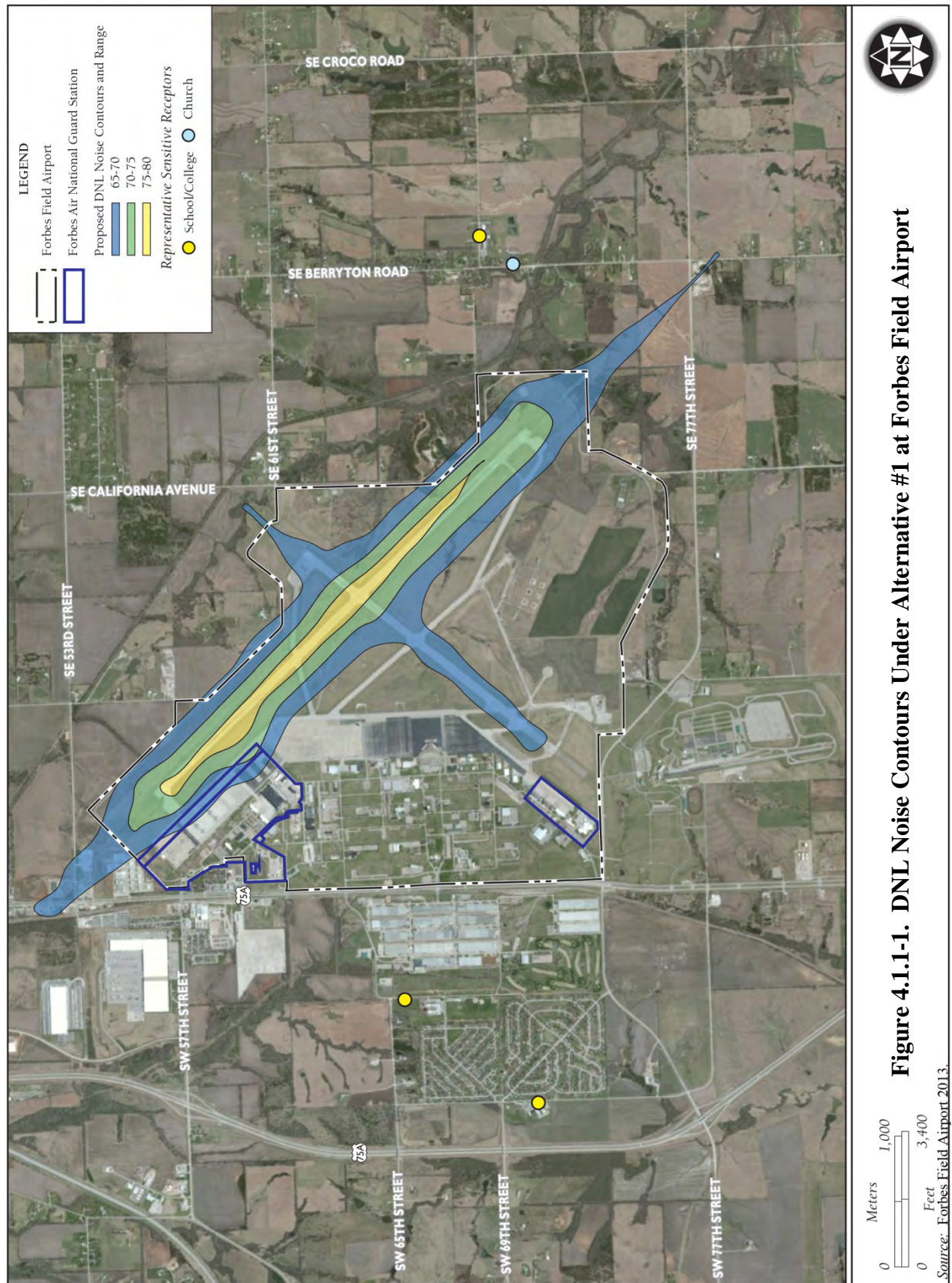
Source: FAA 2012a, Forbes ANG 2013.

Figure 4.1.1-1 depicts the noise exposure area from aircraft operations after the conversion from the current 12 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.1.1-2 compares baseline noise contours with Alternative #1 contours. The aircraft operations modeled include all transient aircraft, and general and commercial aircraft operations depicted in the most current Forbes Field Airport 2013 noise modeling update using 2012 data. Table 4.1.1-2 shows changes to the acreage of land within each noise contour under Alternative #1.

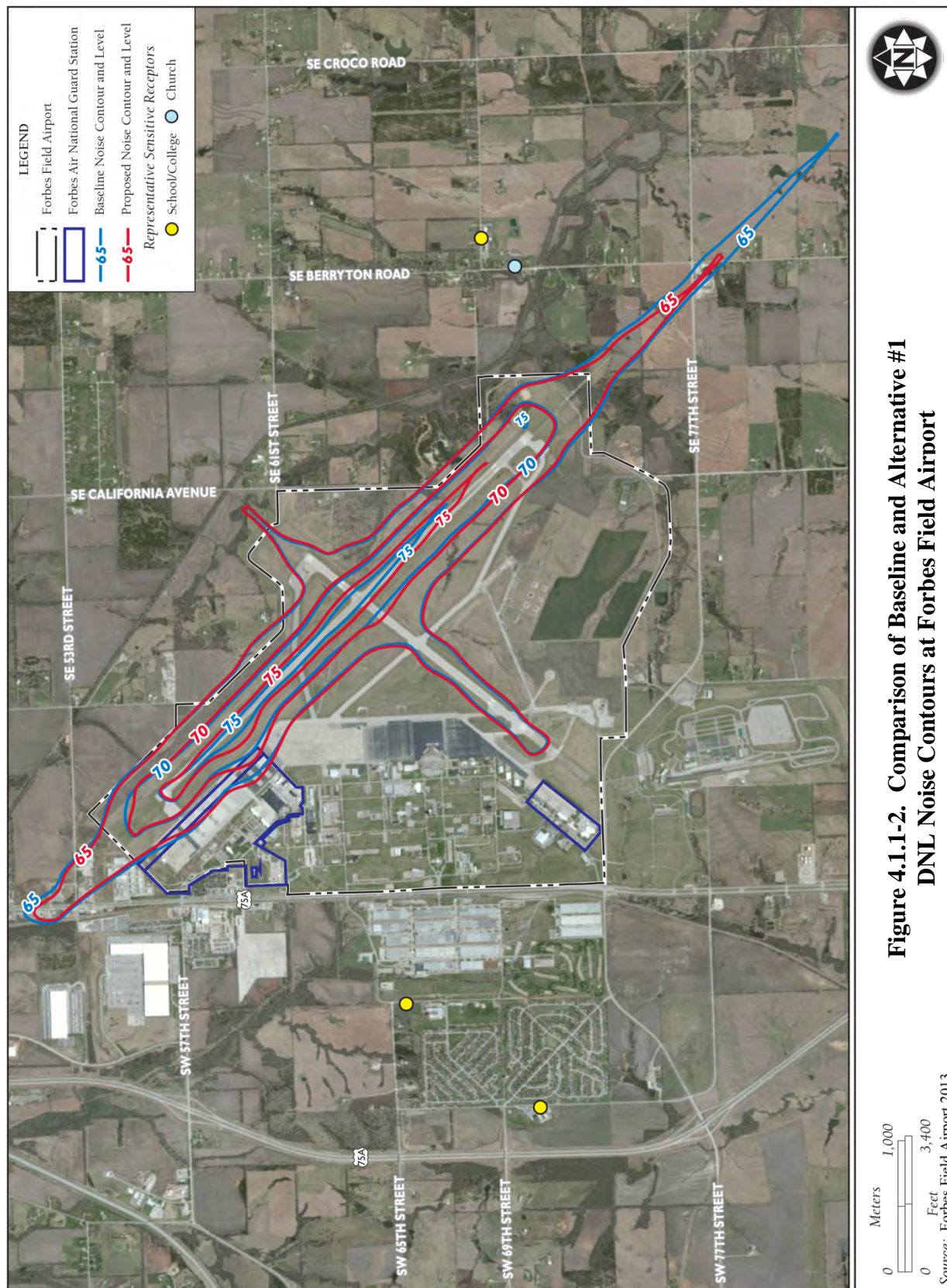
**Table 4.1.1-2. Land Areas within DNL Contours at Forbes Field Airport Affected by DNL Greater than 65 dB under Baseline and Alternative #1**

Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #1 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	448	165	613	430	111	541	-72
70-75	308	0	308	286	0	286	-22
75-80	50	0	50	103	0	103	53
80-85	0	0	0	0	0	0	0
>85	0	0	0	0	0	0	0
<b>Total</b>	<b>806</b>	<b>165</b>	<b>971</b>	<b>819</b>	<b>111</b>	<b>930</b>	<b>-41</b>

Notes: DNL = Day Night Average Sound Level; dB = decibel







While the operations increase under Alternative #1, the DNL noise contours would reduce slightly from the baseline DNL noise contours because the KC-46A is generally a quieter aircraft (5 dB quieter on landing and 1 dB louder on take-off) than the KC-135 and other aircraft such as the F-18 and E-3 contributing more to the DNL levels than the KC-46A. Overall, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 41 acres, or 4 percent, and would remain primarily on airport property with approximately 111 of the acres off the airport property. Information regarding the number of people residing in this area can be found in Section 4.1.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.1.7, *Land Use*.

#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #1 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above 65 dB DNL.

#### *Single Event Sound Analysis*

Under Alternative #1, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Section A.1.2, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #1, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with less than 15 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

Per the ANG mission, the KC-46A would be operated Monday through Friday for a total of approximately 260 operational days per year, mirroring the operational patterns of current KC-135 operations. Based on the average annual day, aircrews would fly 4.94 sorties (initial departure and initial arrival) and approximately 23.1 additional practice approaches (closed patterns) at the airfield. The KC-46A mission would add an additional 4,110 airfield operations per year at the airport with approximately 15 percent conducted between 10:00 p.m. and 7:00 a.m.

#### *Potential Hearing Loss*

As shown in Table 4.1.1-1, there is no property off the Forbes Field Airport that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.1.1.2 Construction Noise

There would be some minor noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (Federal Highway Administration [FHWA] 2006) (Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at Forbes Field Airport dominate the local noise environment for brief times on some days. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #1 would be negligible.

#### 4.1.1.3 Summary of Impacts

While the number of annual airfield operations would increase by 4,110 (39 percent increase in 190 ARW operations, 17 percent increase in total airfield operations), the acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres. There would be no potential for hearing loss off the airport and no increase in the percent population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

### 4.1.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 190 ARW of the KS ANG at Forbes Field Airport in Topeka, Kansas. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Forbes Field Airport were reviewed for significance relative to the Prevention of Significant Deterioration (PSD) threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Shawnee County attain all of the NAAQS, the PSD threshold of 250 tpy (100,000 tpy for greenhouse gases [GHGs]) was used as an indicator of the potential significance of the emissions from Alternative #1.

#### 4.1.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at Forbes Field Airport include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) off-site POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged.

Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.1.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Forbes Field Airport. Table 4.1.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Forbes Field Airport. As shown in Table 4.1.2-1, the net emissions increases are below the PSD thresholds for all pollutants.

**Table 4.1.2-1. Comparison of Baseline and Proposed Annual Operational Emissions, 190 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	3.63	54.09	99.23	8.48	0.45	0.45
AGE	0.01	0.02	0.02	0.00	0.00	0.00
Engine Tests	0.17	2.52	0.69	0.11	0.01	0.01
POVs	1.94	26.38	1.46	0.02	0.06	0.03
<b>Total</b>	<b>5.75</b>	<b>83.00</b>	<b>101.39</b>	<b>8.61</b>	<b>0.53</b>	<b>0.49</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	22.27	83.94	253.12	14.22	0.95	0.81
AGE	0.01	0.02	0.02	0.00	0.01	0.01
Engine Tests	1.27	4.33	1.17	0.14	0.01	0.01
POVs	1.59	23.99	1.11	0.02	0.06	0.03
<b>Total</b>	<b>25.14</b>	<b>112.28</b>	<b>255.42</b>	<b>14.38</b>	<b>1.04</b>	<b>0.86</b>
<b>Net Increase</b>	<b>19.40</b>	<b>29.28</b>	<b>154.03</b>	<b>5.77</b>	<b>0.51</b>	<b>0.37</b>
<b>MOB 2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>3.47</b>	<b>0.35</b>	<b>1.52</b>	<b>0.67</b>	<b>0.96</b>	<b>0.76</b>
<b>PSD Threshold</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration



In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Forbes Field Airport would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 tpy.

Table 4.1.2-2 summarizes the annual operational greenhouse gas (GHG) emissions that would result from KC-46A operations at Forbes Field Airport, along with the net increase in comparison with the baseline. As shown in Table 4.1.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.1.2-2. Comparison of Baseline and Proposed Annual Operational GHG Emissions, 190 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	23,347	0.65	0.73	23,585
AGE	2,421	0.07	0.08	2,446
Engine Tests	296	0.01	0.01	299
POVs	993	0.00	0.00	993
<b>Total</b>	<b>27,056</b>	<b>0.72</b>	<b>0.81</b>	<b>27,324</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	38,724	1.02	1.15	39,102
AGE	3,291	0.09	0.11	3,326
Engine Tests	384	0.01	0.01	388
POVs	1,015	0.00	0.00	1,015
<b>Total</b>	<b>43,413</b>	<b>1.13</b>	<b>1.27</b>	<b>43,831</b>
<b>Net Increase</b>	<b>16,359</b>	<b>0.41</b>	<b>0.46</b>	<b>16,507</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

*Notes:* Numbers may not add precisely due to rounding.

GHG = greenhouse gas; CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.1.2.2 Construction Emissions

The KC-46A beddown at Forbes Field Airport would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.1.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Forbes Field Airport. As shown in Table 4.1.2-3, emissions would be below the PSD thresholds for all pollutants. For construction emissions, the project option with the greatest potential to emit was used in the analysis (see Table 2.3-5).

**Table 4.1.2-3. Annual Construction Emissions Under Alternative #1**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 (Option 1) - Addition to Hangar 662	0.94	1.49	0.26	0.03	1.34	1.12	498.26
Project #2 (Option 2) - Addition to Building 665	1.52	2.42	0.43	0.05	2.45	1.88	808.91
Project #3 - Internal Renovations to Building 679	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 (Option 2) - Pave Apron/Hydrants and Airfield Hold Ramp	5.38	12.98	1.32	0.66	10.93	4.59	3,319.19
<b>Total Maximum Emissions</b>	<b>8.14</b>	<b>17.36</b>	<b>2.07</b>	<b>0.75</b>	<b>14.76</b>	<b>7.63</b>	<b>4,748.95</b>
<b>PSD Threshold</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>100,000</b>

*Note:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.1.2.3 Summary of Impacts

Forbes ANG is located in an attainment area for all criteria pollutants. While there would be increases in operational criteria pollutant emissions, they would be below the PSD threshold, and would not be significant. Operational GHG emissions would be within thresholds in the PSD tailoring. Impacts from construction emissions and operational HAP emissions would be negligible.

### 4.1.3 Safety

#### 4.1.3.1 Ground Safety

Existing facilities at Forbes Field Airport for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013c).

Providing new and renovated facilities for the 190 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 190 ARW.

Proposed renovation and infrastructure improvement projects related to Alternative #1 would not impact aircraft take-off and landings or penetrate any RPZs. New building construction is not proposed, only existing building renovation and minor additions; therefore, construction activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at Forbes Field Airport.

For example, the KC-46A would follow established local approach and departure patterns used. Therefore, flight activity and subsequent operations would not require changes to RPZs.

Planned construction at Forbes Field Airport comprises additions to existing buildings and internal modifications only; no new facilities are proposed. Therefore, none of the construction or demolition would be in conflict with the current QD arcs. Per Air Force Manual (AFMAN) 91-201, *Explosive Safety Standards*, there would be no public transportation route or inhabited building located within the proposed QD arcs. No explosives would be handled during construction or demolition activities. Therefore, no additional risk would be expected as a result of implementation of this alternative.

To support the aircraft beddown at Forbes ANG, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with Unified Facilities Criteria (UFC) 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.1.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (Aviation Safety Network [ASN] 2013).

Although no facilities are proposed that would affect navigable airspace, Forbes ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.



To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #1, there would be an increase of approximately 39 percent 190 ARW operations (17 percent in total airfield operations) at Forbes Field Airport airfield operations compared to existing conditions. Even after the proposed increase, however, the total airfield operations would remain fewer than many of the state's other commercial airfields, including Salina Regional Airport, Hutchinson Municipal Airport, Philip Billard Municipal (Topeka) Airport, and New Century (Olathe) AirCenter (FAA 2013). This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates, and with a new airframe and technological improvements, the KC-46A would be expected to have a similar safety record. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (190 ARW 2012b). In addition, KC-46A aircrews would be required to follow applicable procedures outlined in the 190 ARW BASH Plan (2012); adherence to this program has minimized bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flights and some types of training (e.g., multiple approaches, closed pattern work). Furthermore, special briefings are provided to pilots whenever the potential exists for greater bird/wildlife strike risks within the airspace; KC-46A pilots would also be subject to these procedures.

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Forbes Field Airport as a result of Alternative #1 are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will

have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.1.3.3 Summary of Impacts

There would be a 39 percent increase in actual 190 ARW airfield operations (17 percent increase in total airfield operations) at Forbes Field Airport with commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### 4.1.4 Soils and Water

##### 4.1.4.1 Soils

Under Alternative #1, new construction would consist of four separate projects resulting in up to 258,149 SF (5.9 acres) of new construction footprint and no new impervious surface. There are two construction scenarios for the aircraft conversion under consideration; only one of these options for each project would be implemented. The total construction footprint analyzed represents the largest possible footprint of each of the options (Table 2.3-5). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #1 would occur on Ladysmith silty clay loam (0 to 1 percent slopes). This soil type is rated by the NRCS Web Soil Survey as very limited for roads and small commercial building development due to high shrink swell potential, low strength, ponding, frost action, and depth to saturated zone (NRCS 2013). In addition, this soil is designated as Prime Farmland under the Farmland Protection Policy Act. However, there would be no new impervious surface as a result of Alternative #1 and construction would occur on previously paved ground. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative.

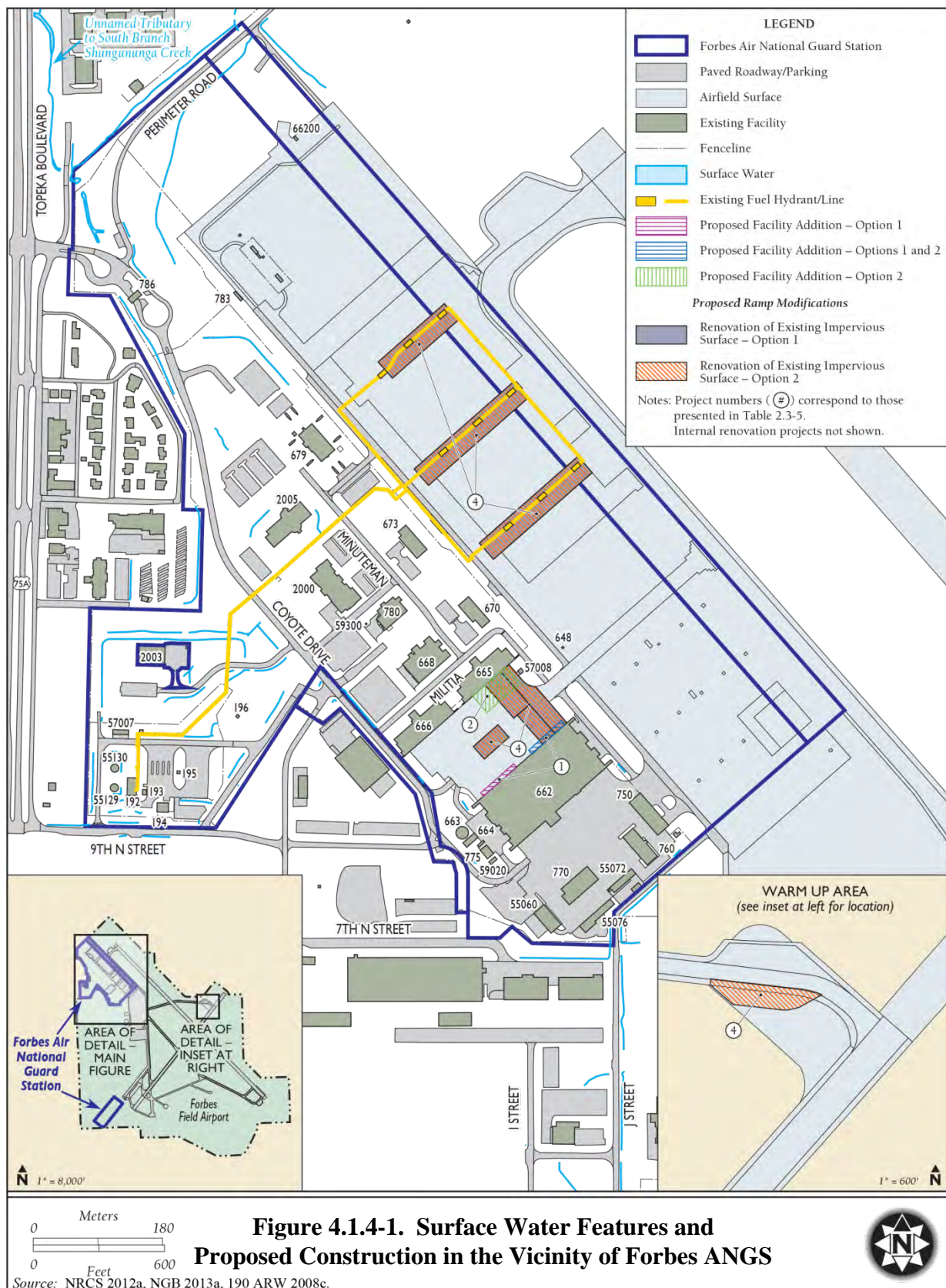
To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices as described in the 190 ARW SWPPP (190 ARW 2012a) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the state of Kansas to obtain coverage under the General Permit for Stormwater Runoff from Construction Activities (General Permit No. S-MCST-0312-1) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #1 would be minimal.

#### 4.1.4.2 Surface Water

As a result of implementation of Alternative #1, there would be up to 258,149 SF (5.9 acres) of temporary soil disturbance from the proposed facility construction; however, there would be no increase in impervious surface (Figure 4.1.4-1). In accordance with UFC 3-210-10, *Low Impact Development* (LID) (as amended, 2010) and *Energy and Independence Security Act* (EISA) Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. However, EISA does not apply in this instance since there would be no increase in impervious surface. Temporary soil disturbance could result in localized increases in total suspended particulates to nearby surface waters. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices as described above and in the 190 ARW SWPPP (190 ARW 2012a) would be implemented during and following the construction period. Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #1 would be minimal.

#### 4.1.4.3 Groundwater

As a result of Alternative #1, there would be no increase in the amount of impervious surface as a result of proposed construction. Therefore, impacts to groundwater would be negligible.



#### 4.1.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.1.4.5 Summary of Impacts

There would be approximately 5.9 acres of temporary soil disturbance and no new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### **4.1.5 Biological Resources**

#### 4.1.5.1 Vegetation

Construction of new facilities associated with Alternative #1 at the 190 ARW installation would occur on currently paved areas and would not result in an increase of impervious surfaces. Therefore, there would be no impacts to the vegetation at the installation.

#### 4.1.5.2 Wildlife

Under Alternative #1, impacts to wildlife due to construction would be minor. Noise and human activity associated with construction could evoke reactions to wildlife, including those that are protected under the MBTA, and may cause them to temporarily avoid the area. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. A study conducted by Strasser and Heath (2013) suggested that cavity nesting birds, such as kestrels, who inhabit noisy environments may compensate for decreased auditory cues by increasing vigilance behavior, leading to changes in energy allocation or extended periods away from the nest during incubation. This behavior appeared to be followed, at a high rate, by nest abandonment. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Under Alternative #1, impacts to wildlife due to proposed operations would be minor. Operational noise levels would be expected to decrease slightly from baseline with the

conversion to the KC-46A aircraft. Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #1, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the KC-46A at Forbes Field Airport would be projected to increase by approximately 39 percent over the KC-135 baseline operations (17 percent increase in total airfield operations). An increase in airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.1.3, *Safety*). The 190 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.1.5.3 Special Status Species

No special status species are currently known to occur on Forbes Field Airport and there is only a low potential for them to occur within the vicinity due to the lack of habitat. In addition, noise levels would be expected to decrease slightly from baseline with the conversion to the KC-46A aircraft. Therefore, under Alternative #1, there would be no effect to special status species. The USFWS Kansas Ecological Services Field Office stated in a letter sent on March 13, 2014 that they have no concerns regarding the Proposed Action.

#### 4.1.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #1.

#### 4.1.5.5 Summary of Impacts

There would be no impacts to vegetation and wetlands under this alternative. Impacts to wildlife species from operational noise would be imperceptibly beneficial due to the slight decrease in noise. A 39 percent increase in 190 ARW (17 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Impacts to wildlife due to construction would be negligible. No special status species or critical habitat is known to occur on Forbes Field Airport; therefore, there would be no impacts to these species.

#### **4.1.6 Cultural Resources**

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,242 to 1,436 would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

##### **4.1.6.1 Archaeological Resources**

Based on previous archaeological surveys that identified no archaeological resources, the installation is considered to have low to no potential of containing buried archaeological resources (KS ANG 2008). The Kansas SHPO has concurred with these findings (Zollner 2008, 2013). In the unlikely event that archaeological or human remains are identified during construction, the 190 ARW would immediately cease all activities in the area of the discovery and contact the 190 ARW Environmental Manager who would contact a qualified archaeologist to evaluate the discovery. Because there are no significant archaeological resources (prehistoric or historic) on the 190 ARW installation, the implementation of Alternative #1 would have no impact to archaeological resources.

##### **4.1.6.2 Architectural Resources**

Two of the buildings proposed for alteration (Hangars 662 and 665) are not eligible for listing in the NRHP (Zollner 2008). The third building (Building 679) is eligible for listing in the NRHP. However, Building 679 has been demolished and completely rebuilt. These actions were mitigated by a Memorandum of Agreement between the Kansas SHPO, Kansas ANG, and 190 ARW for a previous project (Air National Guard Readiness Center *et al.* 2009). The current proposed Alternative #1 would not affect the existing agreement. The interpretive display located in the entry corridor of the new building that was the major component of the Memorandum of Agreement would not be altered (KS ANG 2010). Therefore, the NGB has determined that there would be no effect to historic properties as a result of the Proposed Action. The Kansas SHPO concurs that no historic properties would be affected by the Proposed Action (see Zollner 2013 in Appendix B3). Therefore, the implementation of Alternative #1 would have no impact to architectural resources.

##### **4.1.6.3 Traditional Resources**

There are no known traditional resources on the 190 ARW installation. Given the extensive development on the installation, it is considered unlikely that there are traditional resources located at the 190 ARW. Government-to-government consultation for this action was conducted with each federally-recognized Tribe in recognition of their status as sovereign nations, and to



provide information regarding tribal concerns per Section 106 of the National Historic Preservation Act as well as information on traditional resources that may be present on or near the installation. Two responses from federally-recognized tribes have been received (the Kaw Nation and the Wichita and Affiliated Tribes). The Kaw Nation and the Wichita and Affiliated Tribes stated that they have no objection to the Proposed Action. Letters and written correspondence to Tribes were followed up with telephone calls and emails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Correspondence sent to the tribes and follow-up efforts are located in Appendix B2. Additional efforts were made to contact non-responsive tribes without success (see Appendix B2). While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Forbes ANG is now complete.

#### 4.1.6.4 Summary of Impacts

Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. Interior modifications to Building 679 would not affect the NRHP-eligibility of the building. Other architectural resources are not eligible for listing in the NRHP. The Kansas SHPO has concurred with the determination that no historic properties would be affected (Zollner 2013). No traditional resources are known to occur at the installation. Therefore, no impacts to cultural resources at the 190 ARW installation are anticipated under Alternative #1.

#### 4.1.7 Land Use

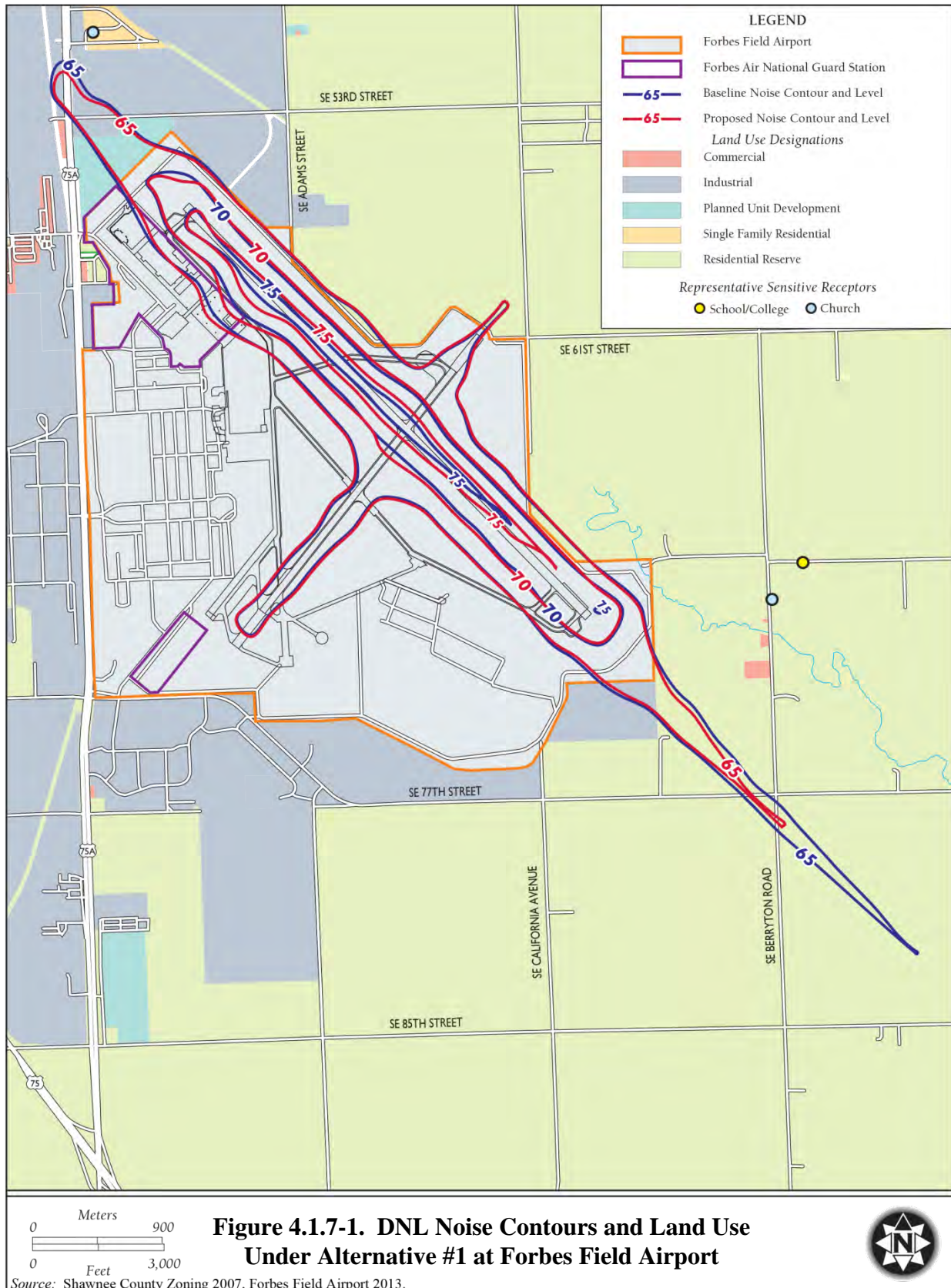
The primary source of impacts to land use resulting from Alternative #1 would be from noise. As shown in Table 4.1.7-1 and Figure 4.1.7-1, areas outside of the airport boundaries currently exposed to DNL of 65 dB to 70 dB would decrease by 55 acres, overall. By zoning districts, the PUD area affected by DNL of 65 dB to 70 dB would decrease by approximately 3 acres; Industrial areas would decrease by approximately 8 acres; and Residential Reserve areas would decrease by approximately 42 acres. No houses, churches, schools, or other known noise sensitive receptors would be located within the 65 dB DNL noise contour. Therefore, Alternative #1 is compatible with current land use and zoning designations and would result in minor beneficial impacts. A more detailed discussion of aircraft operations and noise can be found in Section 4.1.1, *Noise*.

**Table 4.1.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Forbes Field Airport Boundary**

<i>Land Use</i>	<i>Baseline Total (acres)</i>	<i>Proposed Total (acres)</i>	<i>Change Total (acres)</i>
Planned Unit Development	24.0	21.4	-2.6
Industrial	36.0	28.3	-7.7
Residential Reserve	97.4	55.4	-42.0
Non-designated	8.1	5.8	-2.3
<b>Total Area</b>	<b>165.5</b>	<b>110.9</b>	<b>-54.6</b>

#### 4.1.7.1 Summary of Impacts

While the number of total annual airfield operations would increase by 4,110 (17 percent), the acreage within the 65 dB DNL (and greater) noise contour would decrease by 41 acres (55 acres off airport property). Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would be compatible with current land use and zoning designations and would result in imperceptibly beneficial impacts by reducing the off-airport areas currently exposed to noise levels between 65 dB and 70 dB DNL. Airport Hazard Areas would not be affected.



#### **4.1.8 Infrastructure and Transportation**

##### **4.1.8.1 Potable Water**

Water consumption would be expected to increase slightly under Alternative #1 as a result of the increase in personnel; however, an increase in 181 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

##### **4.1.8.2 Wastewater**

Wastewater generation would be expected to increase slightly as a result of the increase in 181 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

##### **4.1.8.3 Stormwater**

Under Alternative #1, there would be up to 258,149 SF (5.9 acres) of temporary soil disturbance and no new impervious surface as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.1.4, *Soils and Water*); however, through implementation of appropriate standard construction practices (as described previously), preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

##### **4.1.8.4 Electrical and Natural Gas Systems**

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with Alternative #1 would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #1 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.1.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 258,149 SF of additions and alterations to existing facilities. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Forbes ANGTS would generate 3,043,577 pounds (1,522 tons) of renovation debris requiring landfill disposal (USEPA 2009).

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Rolling Meadows Landfill has a remaining life expectancy of 15 years and a permitted throughput of 321,000 tons per year (Rolling Meadows Waste Management 2009). The 1,522 tons of proposed construction debris generated at Forbes ANGTS would represent approximately 0.5 percent of the yearly capacity of the landfill. In addition, Shawnee County has a remaining municipal solid waste capacity of 20-40 years (Kansas Department of Health and Environment 2010). Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 190 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.1.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 181 under Alternative #1 (see Table 2.3-6). The increase in personnel would create a potential 181 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #1 would add an additional 362 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #1.

#### 4.1.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### 4.1.9 Hazardous Materials and Waste

#### 4.1.9.1 Hazardous Materials

A Hazardous Materials Management Program has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ozone depleting substances (ODSs). ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #1.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #1, the total number of annual flying hours for the 190 ARW would increase from 4,868 to 8,040 (a 65 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.1, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 190 ARW installation would continue to be followed in future operations associated with Alternative #1 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #1, additions to Hangars 662 and 665 are proposed, and internal renovations to Building 679 are proposed. ACM is known to occur in Hangar 665 and Building 679. An LBP survey has not been conducted at the 190 ARW installation. However, Hangar 662 and 665, and Building 669 were constructed prior to 1978 and therefore may contain LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with the Toxic Substances Control Act (TSCA), Occupational Safety and Health Administration (OSHA) regulations, Kansas requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.1.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft, with the exception of ODSs. Additionally, the two aircraft require the same types of hazardous materials for their



maintenance and operations (e.g., fuels, oils). Under Alternative #1, the total number of flying hours for the 190 ARW would increase approximately 65 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). However, the increase in hazardous waste streams is supportable by the current infrastructure at the installation. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.1.9.3 Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish Resource Conservation and Recovery Act (RCRA) facility assessments, or preliminary assessments and site inspections undertaken in accordance with the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other military construction (MILCON) funds reprogrammed to a MILCON construction project. Construction

contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

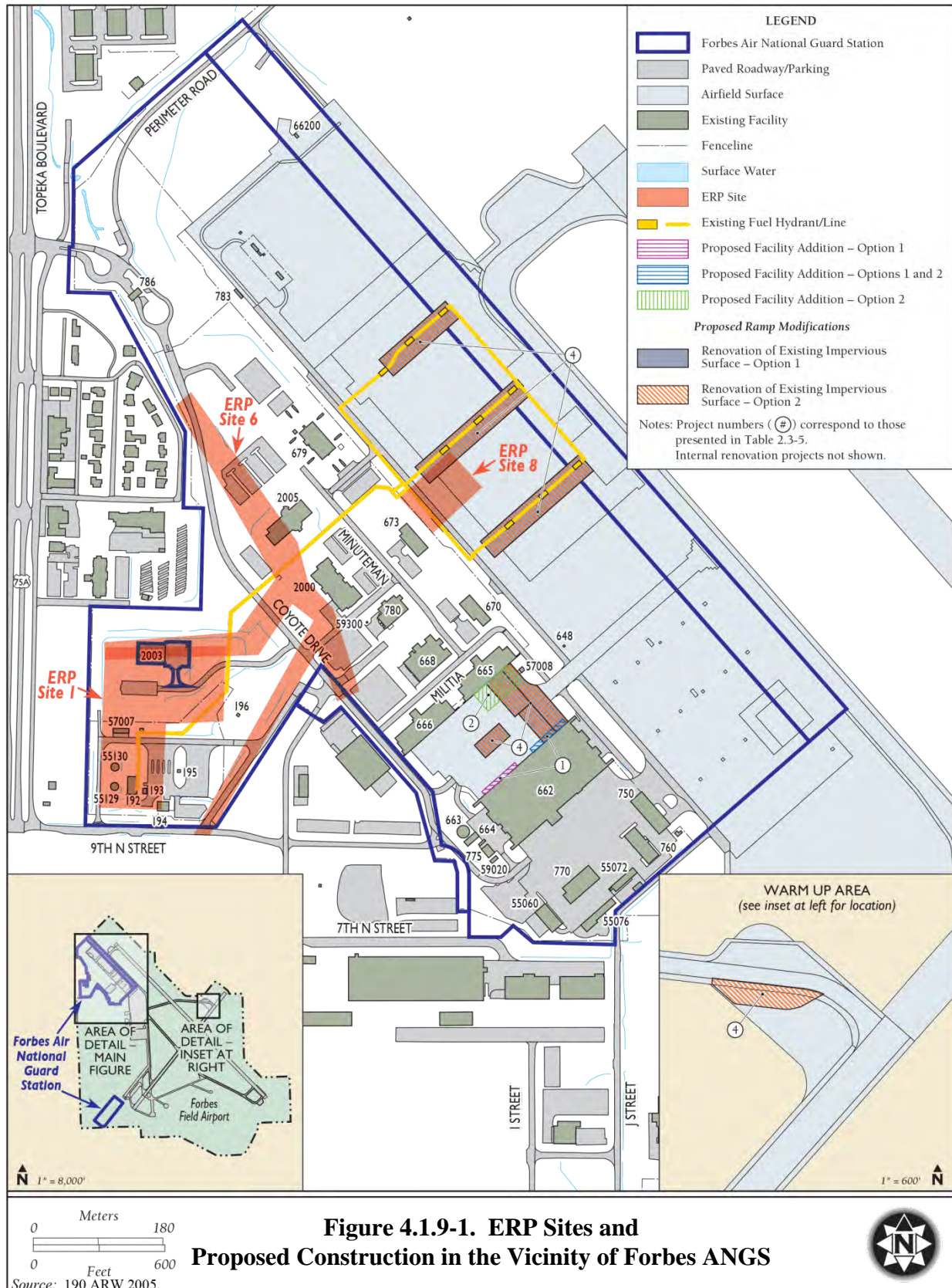
Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One site, ERP Site 8, overlaps with a portion of the proposed renovation of the existing pervious surfaces on the parking apron (Figure 4.1.9-1). This site is closed and monitoring conducted during 1990-1993 was completed with no contaminants reported above detection limits; therefore, it is not expected to pose a vapor intrusion concern. However, it is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.

If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

#### 4.1.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites, as the ERP site that overlaps proposed construction is closed. However, if contaminated media were encountered during the course of site preparation or site development, work would cease until 190 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.



#### 4.1.10 Socioeconomics

Under Alternative #1, construction activities would be contained entirely within the boundaries of Forbes Field Airport. Economic activity associated with proposed construction activities at the 190 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a change in staffing requirements for the 190 ARW. Currently, the 190 ARW is authorized 1,242 personnel. Under Alternative #1, the KC-46A mission would add an additional 194 military positions (increase in 212 full-time positions and reduction of 18 traditional Guard positions) (see Table 2.3-6). Combined with their approximately 264 family members, this would represent less than 0.1 percent of Shawnee County population. Of the 264 family members, approximately 114 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Shawnee County. It is anticipated that there is enough capacity within the schools in Shawnee County to absorb this minimal increase in school age children.

An increase in 194 military personnel positions would amount to an increase of approximately 16 percent to the existing 190 ARW personnel. Total payroll associated with the 212 additional full-time personnel would amount to an estimated annual salary increase of approximately \$16 million for full-time employees.

All 190 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 194 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.2 percent of the total housing units in Shawnee County. However, not all the military personnel who would relocate would own homes.

##### 4.1.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

#### **4.1.11 Environmental Justice and the Protection of Children**

##### **4.1.11.1 Minority and Low-Income Populations**

Under Alternative #1, there would be no residential populations, including no minority or low-income populations, located within the vicinity of Forbes Field Airport exposed to 65 dB DNL or above. Therefore, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Forbes Field Airport.

##### **4.1.11.2 Protection of Children**

There are no facilities on the installation where children may be encountered on a regular basis. Currently there are no off-installation Kindergarten through Grade 12 schools that are exposed to 65 dB DNL or above. Under Alternative #1 there would be no new Kindergarten through Grade 12 schools exposed to 65 dB DNL or above. Therefore, under Alternative #1 there would be no special health or safety risks to children.

##### **4.1.11.3 Summary of Impacts**

Given that the acreage within the 65 dB DNL noise contour would be reduced, there would be no residential populations, including no minority or low-income populations, and no additional schools located within the vicinity of Forbes Field Airport exposed to 65 dB DNL or above; thus, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Forbes Field Airport. In addition, there would be no special health or safety risks to children.

## **4.2 ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST**

### **4.2.1 Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #2 are considered and compared with baseline conditions to assess potential impacts. Details of the methodologies used for this section can be found in Appendix A, Section A.1.2.

The DNL noise contours for this alternative were generated using the NOISEMAP computer model and represent the most current noise data available for establishing baseline conditions and for which to analyze changes to the noise environment in the McGuire Field ROI. The DNL noise contours for the KC-46A under Alternative #2 were also generated using NOISEMAP through the removal of all KC-135 operations and the insertion of the proposed KC-46A operations using the substitute KC-46A noise data and flight profile data provided by AFCEC and applying the data to the current KC-135 flight tracks and operational procedures.

#### **4.2.1.1 Aircraft Noise**

Under Alternative #2, 12 KC-46As would be based at JB MDL, replacing the current 8 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures; however, most tactical procedures would be accomplished in the simulator or at other locations away from JB MDL. The percentage of aircraft operations occurring during the night (10 p.m. to 7 a.m.) would decrease from that in the baseline conditions. Under Alternative #2, JB MDL would have an increase in flying hours generating an increase in KC-46A airfield operations.

Following the aircraft beddown under Alternative #2, the 108 WG would have an increase in total flying hours resulting in 1,508 sorties being flown at McGuire Field. This would be an increase of 81 percent over the baseline 834 sorties identified in the McGuire Field Noise Study (it is assumed that the same percentage of the sorties found under current baseline conditions would be flown at McGuire Field under this alternative) (JB MDL 2013a). Based on 1,508 annual home-station sorties and an average of 11.68 operations per sortie, there would be 17,608 annual home-station operations, or an additional 9,268 airfield operations annually at McGuire

Field (an increase of 111 percent for the 108 WG, and 15 percent increase in total JB MDL annual operations) (Table 4.2.1-1). This would increase the average daily airfield operations from 23 to 48. The 108 WG KC-46A operations would be approximately 24 percent of all aircraft operations at the airfield.

All operations would remain as described under existing conditions (with the exception of a decrease in published night operations [JB MDL 2013a]); however, the KC-135 would be replaced by the KC-46A. There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed as documented in Section 3.2.1.4.

**Table 4.2.1-1. McGuire Field Annual Aircraft Operations with Proposed KC-46A**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	8,047	764	7,863	934	15,910	1,698	17,608
Other Aircraft <sup>3</sup>	18,803	8,316	15,855	11,293	34,658	19,609	54,267
<b>Total</b>	<b>26,850</b>	<b>9,080</b>	<b>23,718</b>	<b>12,227</b>	<b>50,568</b>	<b>21,307</b>	<b>71,875</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other Based aircraft and Transient Aircraft (multiple type aircraft) including: KC-10, C-17, and C-32.

KC-135 aircraft operations per average annual day (arrivals and departures [2.28] and closed patterns [9.14]) would increase with the KC-46A to 11.6 arrivals and departures and 12.5 closed patterns/day. There would be approximately 10 percent of the KC-46A airfield operations flown during environmental night. The total number of operations flown by all other aircraft at JB MDL would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

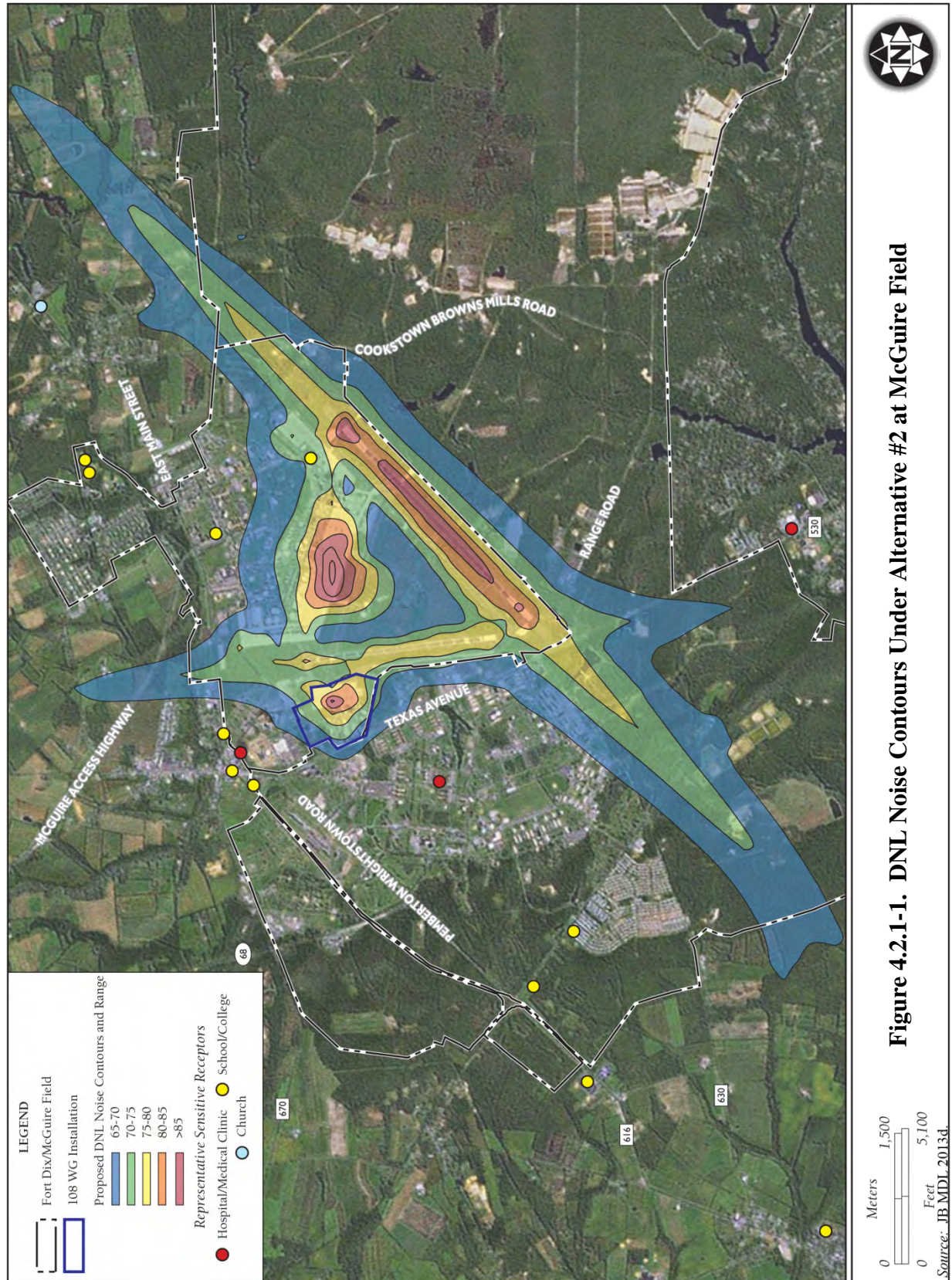
Figure 4.2.1-1 depicts the noise exposure area from aircraft operations after the conversion from the current 8 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.2.1-2 compares baseline noise contours with Alternative #2 contours. The aircraft operations modeled include all current based and transient aircraft operations depicted in the 2012 JB MDL noise update. Table 4.2.1-2 shows changes to the acreage of land within each noise contour under Alternative #2.

**Table 4.2.1-2. Land Areas within DNL Contours at JB MDL Affected by DNL Greater than 65 dB under Baseline and Alternative #2**

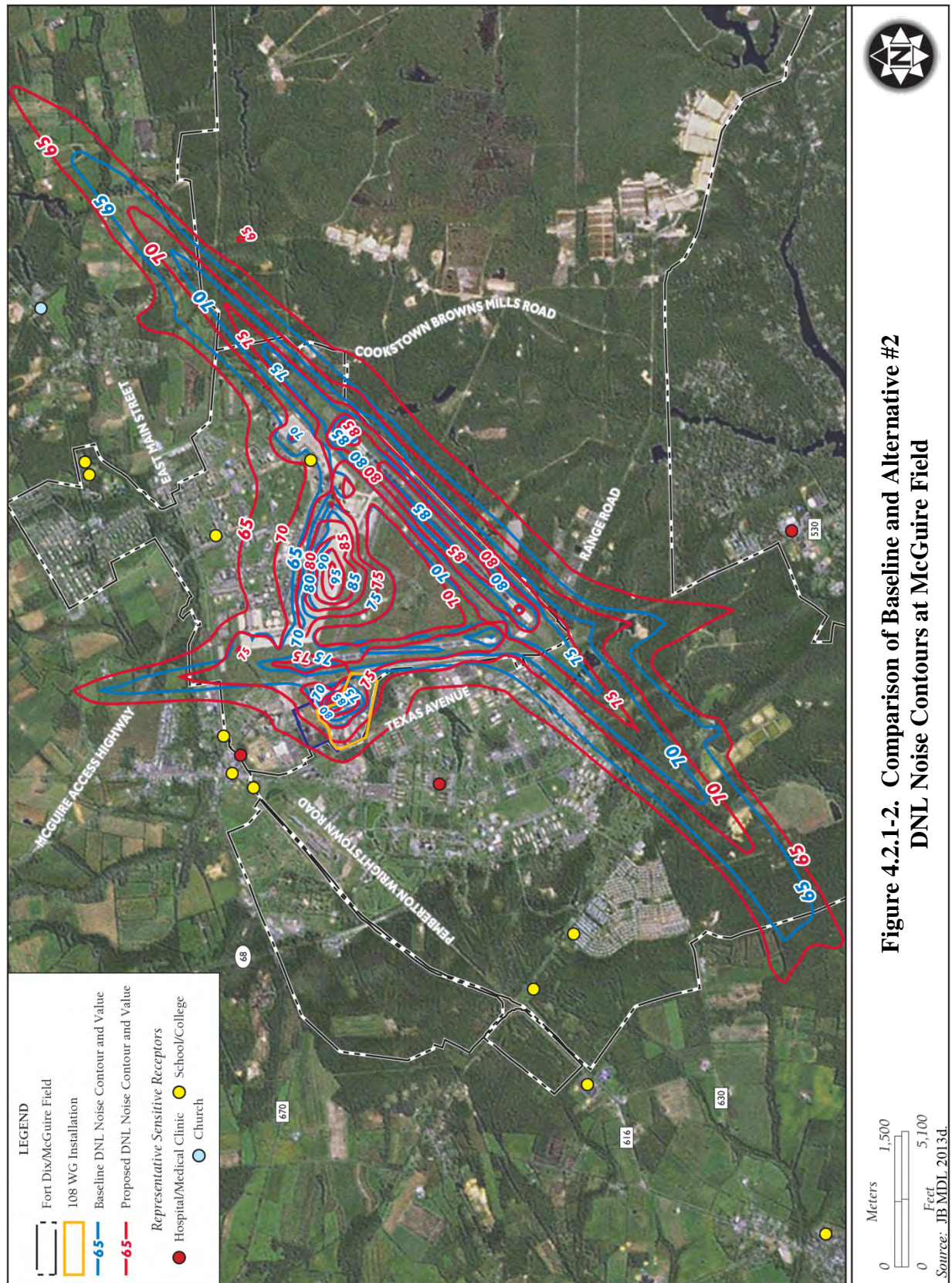
Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #2 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Base	Off Base	Total	On Base	Off Base	Total	
65-70	1,375	311	1,686	1,943	661	2,604	918
70-75	1,186	21	1,207	1,636	90	1,726	519
75-80	370	0	370	655	0	655	285
80-85	222	0	222	253	0	253	31
>85	76	0	76	154	0	154	78
<b>Total</b>	<b>3,229</b>	<b>332</b>	<b>3,561</b>	<b>4,641</b>	<b>751</b>	<b>5,392</b>	<b>1,831</b>

Notes: DNL = Day Night Average Sound Level; dB = decibel









Under Alternative #2, the DNL noise contours would expand slightly in all directions from the baseline DNL noise contours. Overall, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 1,831 acres, or 51 percent, but would remain primarily on McGuire Field with approximately 751 of these acres off the base property (an increase of 419 acres off base). Information regarding number of people residing in this area can be found in Section 4.2.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.2.7, *Land Use*.

#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #2 would increase slightly from baseline conditions because there would be an expected 48 additional individuals living in residences exposed to levels above a DNL of 65 dB.

#### *Single Event Sound Analysis*

Under Alternative #2, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1-1 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #2, flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with less than 10 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

#### *Potential Hearing Loss*

As shown in Table 4.2.1-2, there is no property off the JB MDL that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas. In addition, the on-base housing area lies outside of the 65 dB DNL contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.2.1.2 Construction Noise

There would be some minor temporary noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006) (see Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at JB MDL dominate the local noise environment. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield and would be only temporary. Therefore, impacts from construction under Alternative #2 would be negligible.

#### 4.2.1.3 Summary of Impacts

The number of annual airfield operations would increase by 9,268 (111 percent increase in 108 WG operations, 15 percent increase in total airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres. Of this increase in acreage, 419 acres would be off DoD-controlled property. There would be no potential for hearing loss off the airport and only a slight increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### 4.2.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 108 WG installation. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at JB MDL were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Burlington and Ocean counties are part of the Philadelphia-Wilmington-Atlantic City nonattainment area for O<sub>3</sub> (marginal nonattainment), and is a maintenance area for PM<sub>2.5</sub> and CO, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, PM<sub>2.5</sub>, and CO was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants PM<sub>10</sub> and SO<sub>2</sub>, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #2.

##### 4.2.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at the 108 WG installation include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including non-road mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.



Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on total personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.2.2-1 summarizes the annual operational emissions that would result from KC-46A operations at 108 WG installation. Table 4.2.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at JB MDL. As shown in Table 4.2.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants except NO<sub>x</sub>. Emissions of NO<sub>x</sub> would exceed the *de minimis* threshold, and this alternative would therefore require a Conformity Determination under the General Conformity Rule (Appendix F).

The ANG has prepared a Draft Conformity Determination that demonstrates that emissions associated with Alternative #2 would be within the SIP NO<sub>x</sub> emissions budget for McGuire AFB (now JB MDL), should this alternative be selected. The ANG is coordinating with the NJDEP regarding the 2011 SIP emissions budget and the proposed increase in NO<sub>x</sub> emissions associated with Alternative #2 to ensure that the 2011 budget is still effective. If Alternative #2 is selected, it is anticipated that the ANG will obtain an affirmative General Conformity Determination prior to signing of the ROD.

**Table 4.2.2-1. Comparison of Baseline and Proposed Annual Operational Emissions, 108 WG Installation**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	3.21	49.03	83.34	7.43	0.39	0.39
AGE	0.01	0.01	0.09	0.00	0.00	0.00
Engine Tests	0.14	2.01	0.55	0.09	0.01	0.01
POVs	5.12	110.72	5.20	0.07	0.21	0.12
<b>Total</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>7.59</b>	<b>0.61</b>	<b>0.53</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	26.19	100.37	294.03	17.32	1.13	0.96
AGE	0.01	0.02	0.17	0.00	0.01	0.01
Engine Tests	1.53	5.23	1.38	0.17	0.02	0.01
POVs	4.75	126.34	3.97	0.09	0.22	0.12
<b>Total</b>	<b>32.48</b>	<b>231.97</b>	<b>299.54</b>	<b>17.58</b>	<b>1.38</b>	<b>1.11</b>
<b>Net Increase</b>	<b>24.01</b>	<b>70.19</b>	<b>210.36</b>	<b>9.99</b>	<b>0.77</b>	<b>0.58</b>
<b>MOB 2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>2.83</b>	<b>0.43</b>	<b>2.36</b>	<b>1.32</b>	<b>1.26</b>	<b>1.09</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft under Alternative #2 would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 ton per year.

Table 4.2.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at JB MDL, along with the net increase in comparison with the baseline. As shown in Table 4.2.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.2.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 108 WG**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	20,450	0.57	0.64	20,659
AGE	2,134	0.06	0.07	2,157
Engine Tests	237	0.01	0.01	239
POVs	3,543	0.00	0.00	3,543
<b>Total</b>	<b>26,363</b>	<b>0.63</b>	<b>0.71</b>	<b>26,597</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	47,195	1.25	1.41	47,657
AGE	3,859	0.11	0.12	3,900
Engine Tests	459	0.01	0.01	464
POVs	4,359	0.00	0.00	4,359
<b>Total</b>	<b>55,872</b>	<b>1.37</b>	<b>1.54</b>	<b>56,379</b>
<b>Net Increase</b>	<b>29,509</b>	<b>0.74</b>	<b>0.83</b>	<b>29,782</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.2.2.2 Construction Emissions

The KC-46A beddown at JB MDL would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.2.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at JB MDL. As shown in Table 4.2.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants.

For construction emissions the project option with the greatest potential to emit was used in the analysis (see Table 2.3-11).

**Table 4.2.2-3. Annual Construction Emissions Under Alternative #2**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 - Addition to Hangar 3333	1.43	2.28	0.40	0.04	2.27	1.77	762.34
Project #2 - Addition to Hangar 3336	1.46	2.32	0.41	0.04	2.32	1.80	775.72
Project #3 - Internal Renovations to Hangar 3322	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 - New Simulator Building	0.54	0.85	0.15	0.02	0.71	0.63	285.47
Project #5 - Modifications to Existing Parking Ramp and Taxiway	4.28	10.18	1.06	0.51	6.15	3.00	2,529.83
Project #6 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.01	0.01	0.00	0.00	0.00	0.00	3.88
<b>Total Option 1</b>	<b>8.01</b>	<b>16.11</b>	<b>2.08</b>	<b>0.62</b>	<b>11.48</b>	<b>7.23</b>	<b>4,479.82</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.2.2.3 Summary of Impacts

The 108 WG installation is in a nonattainment area for O<sub>3</sub> (marginal nonattainment), and maintenance area for CO and PM<sub>2.5</sub>, and is therefore subject to *de minimis* thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants, except NO<sub>x</sub>, which would be above the *de minimis* threshold of 100 tpy. A conformity determination must be prepared. Operational GHG emissions are within thresholds in the PSD tailoring rule. Impacts from construction emissions and operational HAP emissions are negligible.

The ANG has prepared a Draft Conformity Determination that demonstrates that emissions associated with Alternative #2 would be within the 2011 SIP NO<sub>x</sub> emissions budget for McGuire AFB (JB MDL), should this alternative be selected. The ANG is coordinating with the NJDEP regarding the 2011 SIP emissions budget and the proposed increase in NO<sub>x</sub> emissions associated with Alternative #2 to ensure that the 2011 budget is still effective. If Alternative #2 is selected, it is anticipated that the ANG will obtain an affirmative General Conformity Determination prior to signing of the ROD.

#### 4.2.3 Safety

##### 4.2.3.1 Ground Safety

Existing facilities at McGuire Field for fire response and crash recovery meet KC-46A beddown requirements (JB MDL 2013b).



Proposed renovation and infrastructure improvement projects related to this alternative would not penetrate any APZs or impact aircraft take-off or landings (JB MDL 2013b). New construction and building renovation activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at JB MDL. For example, the KC-46A would follow established local approach and departure patterns. Therefore, flight activity and subsequent operations would not require changes to APZs. Planned construction at JB MDL would be sited to be in compliance with the current QD arcs and no unauthorized construction would occur within the proposed QD arcs. None of the construction or demolition would be in conflict with the QD arcs. Per AFMAN 91-201, *Explosive Safety Standards*, there would be no public transportation route or inhabited building located within the proposed QD arcs. No explosives would be handled during construction or demolition activities. Therefore, no additional risk would be expected as a result of implementation of this alternative.

To support the aircraft beddown at JB MDL, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.2.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, JB MDL would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #2, there would be an increase of approximately 111 percent 108 WG operations (15 percent in total JB MDL airfield operations) for the Proposed Action compared to existing conditions. This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates, and with a new airframe and technological improvements the KC-46A would be expected to have a similar safety record. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (JB MDL 2010).

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of JB MDL as a result of Alternative #2 are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly

inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.2.3.3 Summary of Impacts

There would be a 111 percent increase in actual 108 WG airfield operations (15 percent in total airfield operations) at JB MDL with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

### 4.2.4 Soils and Water

#### 4.2.4.1 Soils

Under Alternative #2, new construction would consist of six separate projects resulting in up to 204,009 SF (4.7 acres) of new construction footprint and up to 104,884 SF (2.4 acres) of new impervious surface. There are two construction scenarios for the aircraft conversion under consideration; only one of these options would be implemented. The total construction footprint analyzed represents the largest possible footprint of each of the options (Table 2.3-11). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

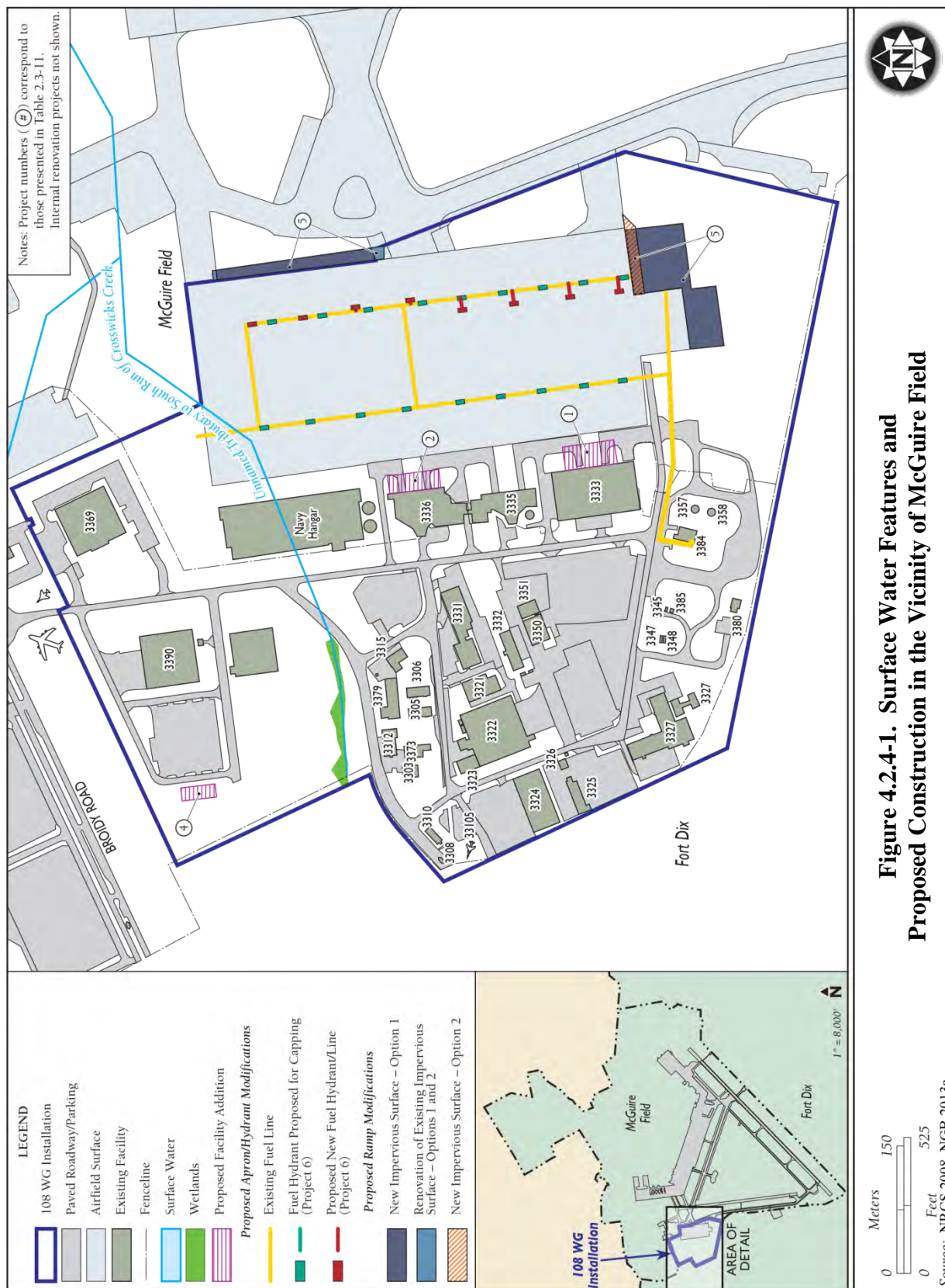
Proposed construction under Alternative #2 would occur primarily on Adelphia-Urban land complex (0 to 5 percent slopes), with a small amount (approximately 0.5 acre) of the new construction footprint on Sassafras sandy loam and Udorthents. Adelphia-Urban land complex is rated by the NRCS Web Soil Survey as somewhat limited for small commercial building development due to shrink-swell potential and depth to saturated zone and very limited for roadway development due to frost action and depth to saturated zone (NRCS 2013). In addition, Sassafras sandy loam (2 to 5 percent slopes) is designated as Prime Farmland under the Farmland Protection Policy Act; however, only 3 percent of the proposed construction footprint would occur on this soil type. The proposed construction is for national defense purposes and the surrounding land is already in urban development. Pursuant to the Farmland Protection Policy Act, the USAF determined that the land is not farmland subject to the Farmland Protection Policy Act; therefore, the Farmland Protection Policy Act does not apply to this alternative.

To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices as described in the 108 WG SWPPP (USAF School of Aerospace Medicine 2010) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. The contractor would also submit a Burlington County Erosion and Sediment Control Plan and receive certification of the plan prior to commencing site work. An NOI must be filed with the state of New Jersey to obtain coverage under the Construction Activity Stormwater General Permit (General Permit No. NJ0088323) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #2 would be minimal.

#### 4.2.4.2 Surface Water

As a result of implementation of Alternative #2, there would be a maximum of 104,884 SF (2.4 acres) of new impervious surface from the proposed construction (Figure 4.2.4-1). This could result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:



- water harvesting and natural open space,
- installation of detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #2 would be minimal.

#### 4.2.4.3 Groundwater

As a result of Alternative #2, the increase in the amount of impervious surface (2.4 acres) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices as described above. The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.2.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.2.4.5 Summary of Impacts

There would be approximately 4.7 acres of temporary soil disturbance and 2.4 acres of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. In addition, as the construction is for national defense purposes and the surrounding land is already in urban development, the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

## **4.2.5 Biological Resources**

### **4.2.5.1 Vegetation**

Construction of new facilities associated with Alternative #2 at the 108 WG installation would primarily occur on currently paved areas or actively managed (i.e., mowed and landscaped) areas. In addition, approximately 0.15 acre (6,700 SF) of forest on the 108 WG installation (< 0.001 percent of the total forested area on JB MDL) would be removed in order to build the new simulator. However, this forested area is a small isolated fragmented parcel, and provides limited quality wildlife habitat. Alternative #2 would result in an increase of 104,884 SF (2.4 acres) of impervious surfaces. Impacts to the vegetation at the installation would be minor due to the lack of sensitive vegetation in the project area.

### **4.2.5.2 Wildlife**

Under Alternative #2, minor impacts to wildlife would occur as a result of construction. Noise and human activity associated with construction could evoke reactions to wildlife, including those that are protected under the MBTA, and may cause them to temporarily avoid the area. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the 108 WG installation where project components would occur are accustomed to human activity and elevated noise associated with aircraft and general military industrial use. In addition, to the extent possible, construction would not occur during the breeding season for grassland birds (April 15 to July 31). As a result, indirect impacts from construction are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications. Additionally, any tree clearing would be performed outside the migratory bird breeding season (March 15 to July 31) to avoid any impacts to migratory birds.

Under Alternative #2, impacts to wildlife due to proposed operations would be minor. DNL noise contours would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft; however, these noise levels would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with existing aircraft and military operations. Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #2, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the 108 WG would be projected to increase by approximately 111 percent over the KC-135 baseline operations (15 percent increase in total airfield operations). An increase in airfield operations would increase the potential for bird/wildlife aircraft strikes to occur. The 108 WG has developed procedures designed to



minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. Adherence to the existing, effective BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.2.3, *Safety*). When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.2.5.3 Special Status Species

No federally listed species are currently known to occur on the 108 WG installation and there is only a low potential for them to occur within the vicinity due to the lack of habitat. Six state listed species have been observed on McGuire Field. Grassland habitat located within the potential ramp expansion area could provide habitat for these species. However, to the extent possible, construction would not occur during the breeding season for grassland birds (March 15 to July 31). Operational noise levels under Alternative #2 would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft. Under Alternative #2, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #2, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.). An additional 419 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. However, since ambient noise levels within the vicinity are relatively high under existing conditions, the Proposed Action under Alternative #2 would be unlikely to substantially increase enough to preclude wildlife from utilizing the area as they currently do. Therefore, there would be no effect to federally listed species and impacts to state listed species would be minor under Alternative #2. The USFWS New Jersey Field Office sent an e-mail on September 27, 2013 stating that they have no objection to the Proposed Action.

#### 4.2.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #2.

#### 4.2.5.5 Summary of Impacts

Impacts to vegetation under this alternative would be minor due to the lack of sensitive vegetation in the project area. There would be no impacts to wetlands. Impacts to wildlife from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction. A 111 percent increase in 108 WG (15 percent increase in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No federally listed species or critical habitat is known to occur on McGuire Field; therefore, there would be no impacts to federally listed species. Six state listed species have been observed on McGuire Field. Impacts to state listed species would be minor.

#### 4.2.6 Cultural Resources

Potential impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts that would come from an increase in personnel from 1,329 to 1,616 necessary for the KC-46A beddown would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

##### 4.2.6.1 Archaeological Resources

The area of McGuire Field was occupied during the late eighteenth through early twentieth century by rural homesteads outlying the nearby towns such as Pointville and Wrightstown. Both Texas Avenue and McGuire Road lie on the alignment of historic roads known to have been used as through routes during the nineteenth century. However, military development of Camp Dix Army Airfield in the early twentieth century, as well as Rudd Field and McGuire Air Force Base during the mid to late twentieth century, led to large scale disturbance of previously occupied historic landscapes. Nonetheless, there are pockets of historic archaeological resources extant within the installation boundaries including the three NRHP eligible sites mentioned in Section 3.2.6. None of these sites are within the area of potential disturbance for Alternative #2. A small amount of construction (0.15 acre) for a new simulator building off of Broidy Road would occur in a stand of trees near this developed area. This area was the location of barracks in the 1940s and 1950s and likely has some buried foundations dating to that period. However, those barracks remains are not considered eligible to the NRHP (Duryee 2013). Therefore, based on previous archaeological surveys at McGuire Field and the historic land use patterns of the installation, the area of proposed construction does not contain any known NRHP-eligible sites and this area is considered to have a low potential for containing buried archaeological materials (87<sup>th</sup> Civil Engineering Squadron 2013). In the unlikely event that archaeological or human

remains are identified during construction, all activities in the area of the discovery would cease and the JB MDL Cultural Resources Manager would be immediately contacted for further instruction. Because the 108 WG installation has been inventoried for archaeological resources and no such resources were encountered within the area of disturbance of Alternative #2, there would be no impacts to archaeological resources (prehistoric or historic) under Alternative #2. The New Jersey SHPO has concurred that there would be no historic properties affected under Alternative #2 (Saunders 2013).

#### 4.2.6.2 Architectural Resources

Alternative #2 would include additions to Hangars 3333 and 3336 and interior renovations to Hangar 3322. Hangars 3333 and 3336 were built in the late 1990s and are not historic; therefore, they are not eligible to the NRHP as they are not yet 50 years old and they do not meet criterion G for exceptional significance under the Cold War or any other event. Hangar 3322, built in 1957, was evaluated for NRHP eligibility in 2013 and determined not eligible for listing in the NRHP (JB MDL 2013d). The New Jersey SHPO concurred that there would be no historic properties affected under the proposed action and that Section 106 consultation was complete (see Saunders 2013 in Appendix B3). Therefore, based on current information, there would be no adverse impact to Hangars 3333, 3336, and 3322 under Alternative #2.

#### 4.2.6.3 Traditional Resources

The 108 WG installation contains no known traditional resources. Given the extensive development on much of the installation, it is considered unlikely that there are traditional resources located at the 108 WG. Government-to-government consultation for this action has been conducted with the Delaware Nation and the Delaware Tribe of Indians in recognition of their status as sovereign nations. This consultation also provides information regarding tribal concerns per Section 106 of the NRHP and information on traditional resources that may be present on or near the installation. The Delaware Tribe of Indians sent a response on October 4, 2013 stating that their review indicated no religious or culturally significant sites in the area and that they have no objection to the Proposed Action (see Obermeyer 2013 in Appendix B2). The Delaware Nation stated via telephone on April 3, 2014 that they had no objection to the Proposed Action. The NGB and the USAF values its relationship with tribes and will continue to seek opportunities to consult on other planning efforts or matters of known/potential interest to tribes.

#### 4.2.6.4 Summary of Impacts

Construction activities associated with this alternative would be primarily limited to the developed areas of the installation in the areas of the aircraft hangars and airfield pavements,

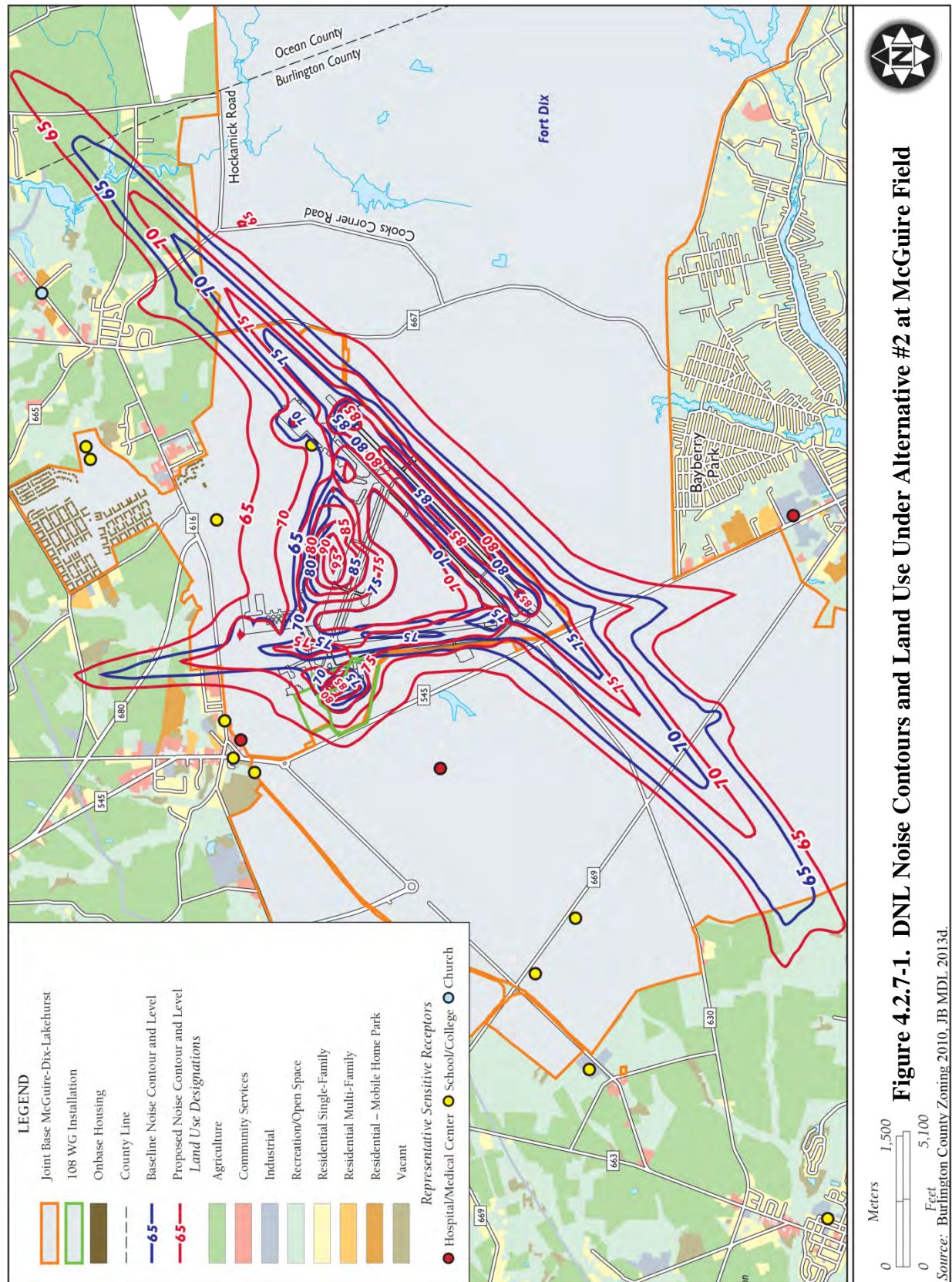
where no archaeological resources are known. A small amount of construction (0.15 acre) for a new simulator building off of Broidy Road would occur in a stand of trees near this developed area. This area was the location of barracks in the 1940s and 1950s and likely has some buried foundations dating to that period. However, those barracks remains are not considered eligible to the NRHP (Duryee 2013). Therefore, based on previous archaeological surveys and historic land use patterns at McGuire Field, the area of proposed construction does not contain any known NRHP-eligible archaeological sites and is considered to have a low potential for containing buried archaeological materials. The New Jersey SHPO has concurred that there would be no historic properties affected under Alternative #2. No traditional resources have been identified. Therefore, no impacts to cultural resources are anticipated at the 108 WG installation under Alternative #2.

#### **4.2.7 Land Use**

The primary source of impacts to land use resulting from Alternative #2 would be from noise. As shown in Table 4.2.7-1 and Figure 4.2.7-1, areas outside of JB MDL boundaries currently exposed to DNLs of 65 dB to 70 dB would increase by approximately 350 acres, overall. By zoning districts, Recreation areas affected by DNL of 65 dB to 70 dB would increase by approximately 6 acres. Agricultural areas would increase by approximately 213 acres; Commercial areas would increase by approximately 7 acres, Residential areas would increase by approximately 2 acres, Open Space areas would increase by approximately 109 acres, and non-designated areas would increase by approximately 13 acres. Areas outside of the airport boundaries currently exposed to DNL of 70 dB to 75 dB would increase by approximately 69 acres, overall. By zoning districts, Recreation, Commercial, and other non-designated areas affected by DNL of 70 dB to 75 dB would remain approximately the same; Agricultural areas would increase by approximately 51 acres; Residential areas would increase by approximately 6 acres, and Open Space areas would increase by approximately 11 acres.

**Table 4.2.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the McGuire Field Boundary**

<i>Land Use</i>	65 dB TO 70 dB DNL			70 dB TO 75 dB DNL			<i>Total Change (acres)</i>
	<i>Baseline (acres)</i>	<i>Proposed (acres)</i>	<i>Change (acres)</i>	<i>Baseline (acres)</i>	<i>Proposed (acres)</i>	<i>Change (acres)</i>	
Recreation	<1	6	6	0	0	0	6
Agricultural	214	427	213	10	61	51	264
Commercial	2	9	7	0	<1	<1	7
Residential	13	15	2	7	13	6	8
Open Space	73	182	109	4	16	11	119
Non-designated	9	22	13	0	<1	<1	13
<b>Total Area</b>	<b>311</b>	<b>661</b>	<b>350</b>	<b>21</b>	<b>90</b>	<b>69</b>	<b>419</b>



Agricultural areas would be most likely to be exposed to increases in noise levels, but those levels (60-75 dB DNL) would remain compatible as per FICUN standards (Appendix A, Section A.7). An additional 8 acres of residential use areas would be exposed to DNL above 65 dB, levels considered incompatible as per FICUN standards. With the exception of residences associated with 48 additional people, no churches, schools, or other known noise sensitive receptors would be located within the 65 dB DNL noise contour. The minimal increase in incompatible noise levels would result in minor impacts to land use. A more detailed discussion of aircraft operations and noise can be found in Section 4.2.1, *Noise*.

#### 4.2.7.1 Summary of Impacts

The number of total annual airfield operations would increase by 9,268 (15 percent), and the acreage within the 65 dB DNL (and greater) noise contour off DoD-controlled property would increase by 419 acres. An additional 8 acres of residential use areas would be exposed to DNL greater than 65 dB. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in minor adverse impacts due to an increase in off-airport areas (including residential areas) exposed to noise levels between 65 dB and 75 dB DNL. Airport Hazard Areas would not be affected.

### 4.2.8 Infrastructure and Transportation

#### 4.2.8.1 Potable Water

Water consumption would be expected to increase slightly under Alternative #2 as a result of the increase in personnel; however, an increase in 255 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

#### 4.2.8.2 Wastewater

Wastewater generation would be expected to increase slightly as a result of the increase in 255 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.



#### 4.2.8.3 Stormwater

Under Alternative #2, there would be up to 204,009 SF (4.7 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.2.4, *Soils and Water*); however, through implementation of appropriate standard construction practices (as described previously), preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 104,884 SF (2.4 acres) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.2.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #2 would be minimal.

#### 4.2.8.4 Electrical and Natural Gas Systems

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with Alternative #2 would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #2 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.2.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 204,009 SF of additions and alterations to existing facilities and 104,884 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated proposed renovations at JB MDL would generate 2,405,266 pounds (1,203 tons) of renovation debris requiring landfill disposal and proposed new construction at JB MDL would generate 455,197 pounds (228 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at JB MDL would be 1,431 tons.

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Burlington County Resource Recovery Complex has a remaining life expectancy of 5 years and a permitted throughput of 360,000 tons per year (Burlington County 2009). The 1,507 tons of proposed construction debris generated at JB MDL would represent approximately 0.4 percent of the yearly capacity of the landfill. In addition, Burlington County Resource Recovery Complex has room for expansion to meet the needs for future growth (Burlington County 2009). Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 108 WG installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.2.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however,

increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 255 under Alternative #2 (see Table 2.3-12). The increase in personnel would create a potential 255 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #2 would add an additional 510 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #2.

#### **4.2.8.7 Summary of Impacts**

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### **4.2.9 Hazardous Materials and Waste**

#### **4.2.9.1 Hazardous Materials**

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #2.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the

KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #2, the total number of flying hours for the 108 WG would increase from 3,687 to 8,040 (an increase of 118 percent); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 108 WG installation would continue to be followed in future operations associated with Alternative #2 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #2, additions to Hangars 3333 and 3336 are proposed, and internal renovations to Hangar 3322 are proposed. An asbestos survey was performed at the 108 WG installation in 2007. According to the 2007 asbestos report, Hangar 3322 was found to contain ACM in the insulation, floor tiles, and mastic. An LBP survey has not been conducted at the 108 WG installation. However, Hangar 3322 was constructed prior to 1978, and therefore may contain LBP. Hangars 3333 and 3336 were built after 1978 and therefore are assumed to contain no LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, State of New Jersey requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.2.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft, with the exception of ODSs. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #2, the total number of flying hours for the 108 WG would increase approximately 118 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). However, the increase in hazardous waste streams is supportable by the current

infrastructure at the installation. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.2.9.3 Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

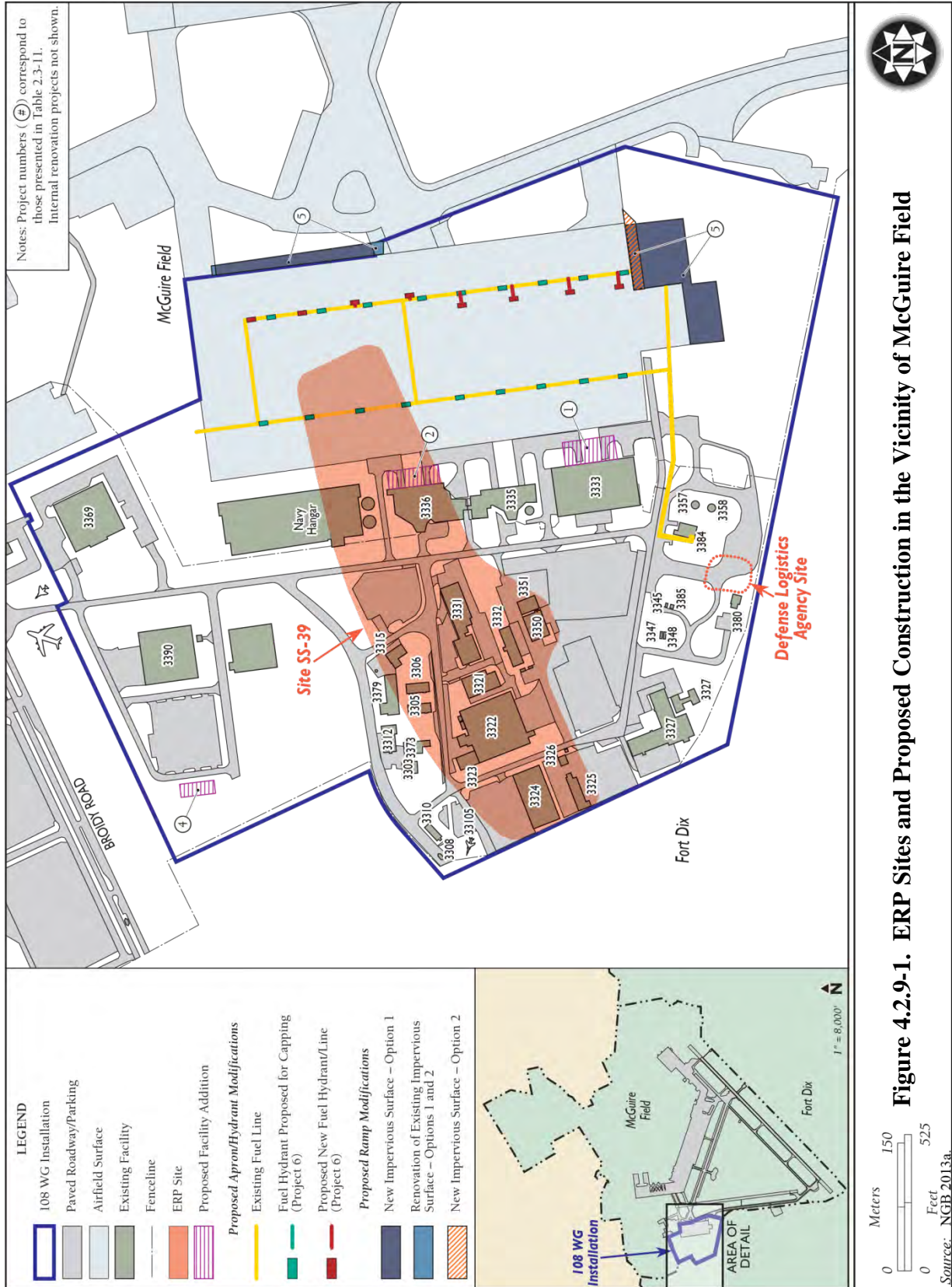
Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One of the ERP Sites, SS-39, overlaps with a portion of the existing fuel hydrants that would be capped, as well as the proposed addition to Hangar 3336, under Alternative #2 (Figure 4.2.9-1). Remedial investigation is on-going with this site. It is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.

If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 108 WG Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

#### 4.2.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.





#### 4.2.10 Socioeconomics

Under Alternative #2, construction activities would be contained entirely within the boundaries of JB MDL. Economic activity associated with proposed construction activities at the 108 WG installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a minor change in staffing requirements for the 108 WG. Currently, the 108 WG is authorized 1,329 personnel. Under Alternative #2, the KC-46A mission would add an additional 287 military positions (increase in 231 full-time positions and an increase of 56 traditional Guard position) (see Table 2.3-12). Combined with their approximately 390 family members, this would represent less than 0.09 percent of Burlington County and 0.07 percent of Ocean County (assumes 100 percent of increase in off-base population living in each county). Of the 390 family members, approximately 156 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Ocean and Burlington counties. It is anticipated that there is enough capacity within the schools in these counties to absorb this minimal increase in school age children.

An increase in 287 military personnel positions would amount to an increase of approximately 21.6 percent to the existing 108 WG personnel. Total payroll associated with the 231 full-time personnel would amount to an estimated total annual salary increase of approximately \$21 million.

While there is housing located on JB MDL, currently all 108 WG personnel live off-installation. Under Alternative #2, there is ample on-base housing to accommodate the 199 new active associate personnel should they choose to live on base. However, currently only 20 percent of active duty personnel live on base. Therefore, it is assumed that approximately 20 percent of the 199 proposed active associate personnel (approximately 40 individuals) and their families would live on base. This could in turn result in approximately 247 personnel living off the installation and purchasing 247 homes as personnel relocate to the area. This would represent less than 0.2 percent of the total housing units in Burlington County and less than 0.1 percent of Ocean County. However, not all the military personnel who would relocate would own homes and personnel would most likely be distributed between the two counties.

## 4.2.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

## 4.2.11 Environmental Justice and the Protection of Children

## 4.2.11.1 Minority and Low-Income Populations

As presented in Table 4.2.11-1, of the roughly 128 persons (48 more than baseline) that would be affected by a DNL above 65 dB, approximately 23 would be minority (18 percent). This is an increase of 11 people, or 3 percent, of minorities affected. The number of low-income persons affected by a DNL greater than 65 dB would be approximately 6 (an increase of 2 people and less than 1 percent). Overall, the number of persons affected by a DNL of 65 dB and greater would increase slightly under this alternative, and the increase in the percentage of minority and low-income persons affected would be minor. Therefore, impacts to minority or low-income populations in the vicinity of JB MDL would not be significant and there would be no disproportionate impacts to minority or low-income populations.

**Table 4.2.11-1. Population within Alternative #2 Noise Contours, JB MDL<sup>1</sup>**

Noise Contour	Total Population	Minority Population	Percent Minority	Low-Income Population	Percent Low-Income <sup>2</sup>
65-70	77	14	18	4	5
70-75	51	9	18	2	4
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>128</b>	<b>23</b>	<b>18</b>	<b>6</b>	<b>5</b>

Note: 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 5-Year Estimates.

2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

Sources: USCB 2010b and 2011c.

## 4.2.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there are no Kindergarten through Grade 12 off-installation schools that are exposed to a DNL of 65 dB or above; however, there is one child development center located within the 65 dB contour. Under Alternative #2 there would be no new Kindergarten through Grade 12 schools exposed to a DNL of 65 dB or above; however, the child development center that is currently under the 65 dB contour would be located under the 70 dB contour.

#### 4.2.11.3 Summary of Impacts

Although the acreage and the number of persons within the 65 dB DNL noise contours would increase slightly under this alternative, the percentage of minority and low-income persons affected would remain approximately the same as baseline, and no additional schools would be located within the vicinity of JB MDL exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.

### **4.3           ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION**

#### **4.3.1       Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #3 are considered and compared with current conditions to assess potential impacts at Portsmouth IAP. Details of the methodologies used for this section can be found in Appendix A, Section A.1.2.

DNL noise contours for the KC-46A under Alternative #3 were generated using INM. Based KC-135 operations were removed and replaced with KC-46A operations using the B-767-300 and the standard flight profile data provided with INM as substitute data and applying the data to the current based KC-135 flight tracks and operational procedures (INM does not have a standard profile or noise curve data for the KC-46A). Using the standard flight profile data provided for this substitute aircraft in INM provides an accurate analysis of noise contour comparisons that would be expected with the new KC-46A. Flight profiles, flight tracks, and operational procedures currently being used by the KC-135 were used in this INM program.

##### **4.3.1.1     Aircraft Noise**

Under Alternative #3, 12 KC-46As would be based at Pease ANG, replacing the current 8 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and the KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures; however, most tactical procedures would be accomplished primarily in the simulator or at other locations away from Portsmouth IAP.

Under Alternative #3, the 157 ARW would have an increase in flying hours generating an increase in airfield operations by 2,700 from 6,140 to 8,840 operations (a 44 percent increase). Aircraft operations per average annual day (arrivals and departures [1.68] and closed patterns [6.73]) would increase under Alternative #3 to 2.42 arrivals and departures and 9.7 closed patterns/day. The percentage of 157 ARW aircraft operations occurring during environmental night (10 p.m. to 7 a.m.) would remain at the same 4 percent as under baseline conditions. The

total number of operations flown by all other aircraft at Portsmouth IAP would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition (Table 4.3.1-1).

**Table 4.3.1-1. Portsmouth IAP Annual Aircraft Operations with Proposed KC-46A**

Aircraft	DEPARTURES		ARRIVALS		TOTAL <sup>1</sup>		Grand Total <sup>1</sup>
	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	Day	Night <sup>2</sup>	
KC-46A	4,231	189	4,231	189	8,462	378	8,840
Other Aircraft <sup>3</sup>	14,541	1,094	14,853	782	29,394	1,876	31,270
<b>Total</b>	<b>18,772</b>	<b>1,283</b>	<b>19,084</b>	<b>971</b>	<b>37,856</b>	<b>2,254</b>	<b>40,110</b>

Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other based military and civilian aircraft and transient aircraft (multiple type aircraft) including: Lear 25, 35, and Airbus 319.

Source: 157 ARW 2013a.

Figure 4.3.1-1 depicts the noise exposure area from aircraft operations after the conversion from the current 8 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.3.1-2 compares baseline noise contours with Alternative #3 contours. The aircraft operations modeled include all transient aircraft, and general and commercial aircraft operations depicted in the most current Portsmouth IAP 2012 noise modeling update. Table 4.3.1-2 shows changes to the acreage of land within each noise contour under Alternative #3.

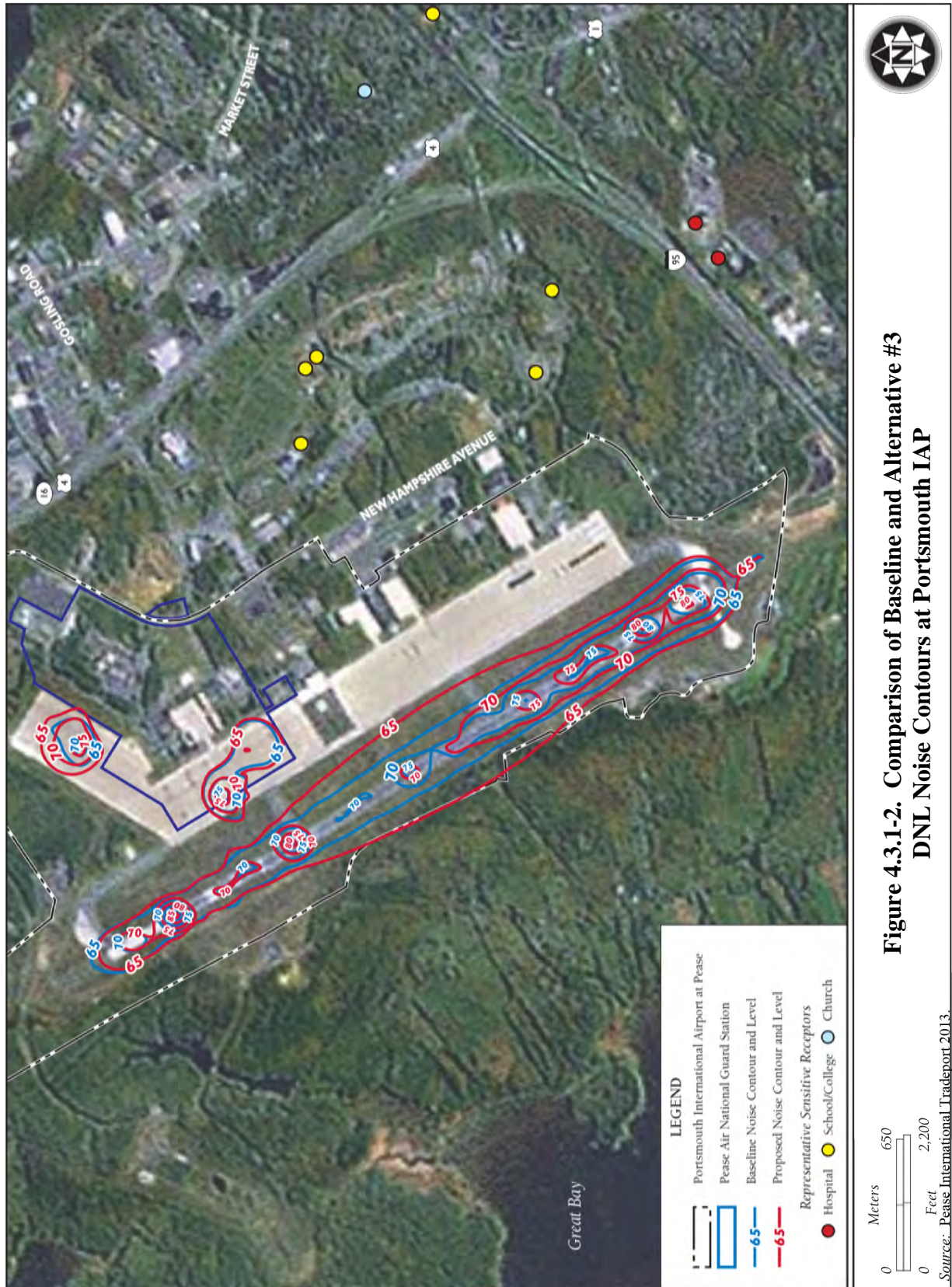
**Table 4.3.1-2. Land Areas within DNL Contours at Portsmouth IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #3**

Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #3 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	237	0	237	334	4	338	101
70-75	81	0	81	101	0	101	21
75-80	16	0	16	27	0	27	11
80-85	1	0	1	3	0	3	2
>85	0	0	0	0	0	0	0
<b>Total</b>	<b>334</b>	<b>0</b>	<b>334</b>	<b>465</b>	<b>4</b>	<b>469</b>	<b>135</b>

Notes: Numbers may not add precisely due to rounding.  
 DNL = Day Night Average Sound Level; dB = decibel









Under Alternative #3, the DNL noise contours would expand slightly in all directions from the baseline DNL noise contours. Overall, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 135 acres, or 40 percent, but would remain primarily on airport property with approximately 4 of these acres off the airport property. Information regarding number of people residing in this area can be found in Section 4.3.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.3.7, *Land Use*.

#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #3 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above DNL65 dB.

#### *Single Event Sound Analysis*

Under Alternative #3, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #3, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

#### *Potential Hearing Loss*

As shown in Table 4.3.1-1, there is no property off the Portsmouth IAP that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.3.1.2 Construction Noise

There would be some minor noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006) (see Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at Portsmouth IAP dominate the local noise environment. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #3 would be negligible.

#### 4.3.1.3 Summary of Impacts

The number of annual airfield operations would increase by 2,700 (44 percent increase in 157 ARW operations, 7 percent increase in total airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property. There would be no potential for hearing loss off the airport and no increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### 4.3.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 157 ARW of the NH ANG at Pease ANG, in Newington, New Hampshire. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Pease ANG were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Rockingham County is a maintenance area for O<sub>3</sub>, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #3.

##### 4.3.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at Pease ANG include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest

3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.3.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Pease ANG. Table 4.3.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Pease ANG. As shown in Table 4.3.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.3.2-1. Comparison of Baseline and Proposed  
Annual Operational Emissions, 157 ARW**

<i>Baseline</i>	Annual Emissions, tons/year					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	2.41	36.29	73.94	6.29	0.33	0.33
AGE	0.00	0.01	0.07	0.00	0.00	0.00
Engine Tests	0.10	1.47	0.40	0.06	0.01	0.01
POVs	1.11	19.06	0.91	0.01	0.04	0.02
<b>Total</b>	<b>3.62</b>	<b>56.84</b>	<b>75.32</b>	<b>6.36</b>	<b>0.37</b>	<b>0.35</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	15.24	56.95	157.41	8.96	0.61	0.52
AGE	0.01	0.01	0.10	0.00	0.00	0.00
Engine Tests	0.77	2.63	0.71	0.08	0.01	0.01
POVs	0.91	17.45	0.70	0.01	0.04	0.02
<b>Total</b>	<b>16.93</b>	<b>77.05</b>	<b>158.92</b>	<b>9.06</b>	<b>0.66</b>	<b>0.55</b>
<b>Net Increase</b>	<b>13.31</b>	<b>20.21</b>	<b>83.60</b>	<b>2.70</b>	<b>0.28</b>	<b>0.19</b>
<b>MOB2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>3.68</b>	<b>0.36</b>	<b>1.11</b>	<b>0.42</b>	<b>0.76</b>	<b>0.54</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>250</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>250</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Pease ANG would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 ton per year.

Table 4.3.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at Pease ANG, along with the net increase in comparison with the baseline. As shown in Table 4.3.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.3.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 157 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	17,303	0.48	0.54	17,480
AGE	1,571	0.04	0.05	1,588
Engine Tests	172	0.00	0.01	174
POVs	597	0.00	0.00	597
<b>Total</b>	<b>19,643</b>	<b>0.53</b>	<b>0.59</b>	<b>19,839</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	24,391	0.64	0.72	24,629
AGE	2,262	0.06	0.07	2,286
Engine Tests	233	0.01	0.01	235
POVs	612	0.00	0.00	612
<b>Total</b>	<b>27,499</b>	<b>0.71</b>	<b>0.80</b>	<b>27,762</b>
<b>Net Increase</b>	<b>7,855</b>	<b>0.18</b>	<b>0.21</b>	<b>7,924</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

*Notes:* Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle; GMV = government motor vehicle

#### 4.3.2.2 Construction Emissions

The KC-46A beddown at Pease ANG would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.3.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Pease ANG. As shown in Table 4.3.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants. For construction emissions, the project option with the greatest potential to emit, was used in the analysis (see Table 2.3-17).

**Table 4.3.2-3. Annual Construction Emissions Under Alternative #3**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 (Option 2) - Renovation/Addition to Building 264	0.93	1.48	0.26	0.03	1.33	1.11	494.25
Project #2 - Addition to Building 166	0.35	0.55	0.10	0.01	0.44	0.41	185.26
Project #3 - Internal Renovations to Hangar 251	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 (Option 1) - Addition/Alteration to Hangar 253	1.52	2.42	0.43	0.05	2.45	1.88	808.91
Project #5 - (Option 1) - Demolition/Addition/Alteration to Hangar 254	1.48	2.36	0.41	0.04	2.37	1.83	789.52
Project #6 - Alter Aircraft Taxiway	0.31	0.75	0.08	0.04	0.18	0.16	185.62
Project #7 - Demolition/Modify/Install Aprons and Hydrants	0.07	0.16	0.02	0.01	0.04	0.04	42.16
Project #8 - Repave Quad Apron	1.16	2.80	0.28	0.14	1.01	0.71	715.98
<b>Total maximum emissions</b>	<b>6.12</b>	<b>10.99</b>	<b>1.64</b>	<b>0.33</b>	<b>7.86</b>	<b>6.18</b>	<b>3,344.29</b>
<b>PSD/de minimis Threshold</b>	<b>250</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.3.2.3 Summary of Impacts

The Pease ANGS installation is in a maintenance area for O<sub>3</sub>, and is therefore subject to *de minimis* thresholds. While there are increases in operational criteria pollutant emissions, they are below the PSD/*de minimis* thresholds for all pollutants and are not significant. Operational GHG emissions are within thresholds in the PSD tailoring rule. Impacts from construction emissions and operational HAP emissions are negligible.

### 4.3.3 Safety

#### 4.3.3.1 Ground Safety

Existing facilities at Pease ANGS for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013a).

Proposed renovation and infrastructure improvement projects related to this alternative would not penetrate any RPZs or impact aircraft takeoff or landing (Headquarters AMC and NGB 2013a). New construction and building renovation activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at Portsmouth IAP. For example, the KC-46A would follow established local approach and departure patterns used. Therefore, flight activity and subsequent operations would not require changes to RPZs.

Under this alternative, no new facilities are proposed for Pease ANG. Planned construction at the installation comprises renovation and additions to several hangars; construction and upgrades to the taxiway; and demolition and installation of new fuel hydrants and lines on the parking apron. None of the construction or demolition would be in conflict with the current QD arcs.

Providing new and renovated facilities for the 157 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 157 ARW.

Construction activities would not involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.3.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, Pease ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and

are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #3, there would be an increase of approximately 44 percent 157 ARW airfield operations (7 percent in total Portsmouth IAP operations) at Portsmouth IAP compared to existing conditions. This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates, and with a new airframe and technological improvements the KC-46A would be expected to have a similar safety record. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (157 ARW 2011b).

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Portsmouth IAP as a result of Alternative #3 would be expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.3.3.3 Summary of Impacts

There would be a 44 percent increase in actual 157 ARW airfield operations (7 percent increase in total airfield operations) at Portsmouth IAP with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and



procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### **4.3.4 Soils and Water**

##### **4.3.4.1 Soils**

Under Alternative #3, new construction would consist of eight separate projects resulting in up to 130,966 SF (3.0 acres) of new construction footprint and up to 23,617 SF (0.5 acre) of new impervious surface. There are two construction scenarios for the aircraft conversion under consideration; only one of these options for each project would be implemented. The total construction footprint analyzed represents the largest possible footprint of each of the options (Table 2.3-17). These proposed construction projects would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #3 would occur primarily on Urban land-Canton complex (3 to 15 percent slopes), with a small amount of the new construction footprint on Urban land and Udorthents. These three soils are either not rated or not limited for road or small commercial building development and may require onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2013). Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply.

Under Alternative #3, there would be 130,966 SF (3.0 acres) of temporary soil disturbance as a result of the proposed construction. To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices, as described in the Portsmouth IAP SWPPP (Portsmouth IAP 2011) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the USEPA New England Region to obtain coverage under the NPDES General Permit for Discharges from Construction Activities prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #3 would be minimal.

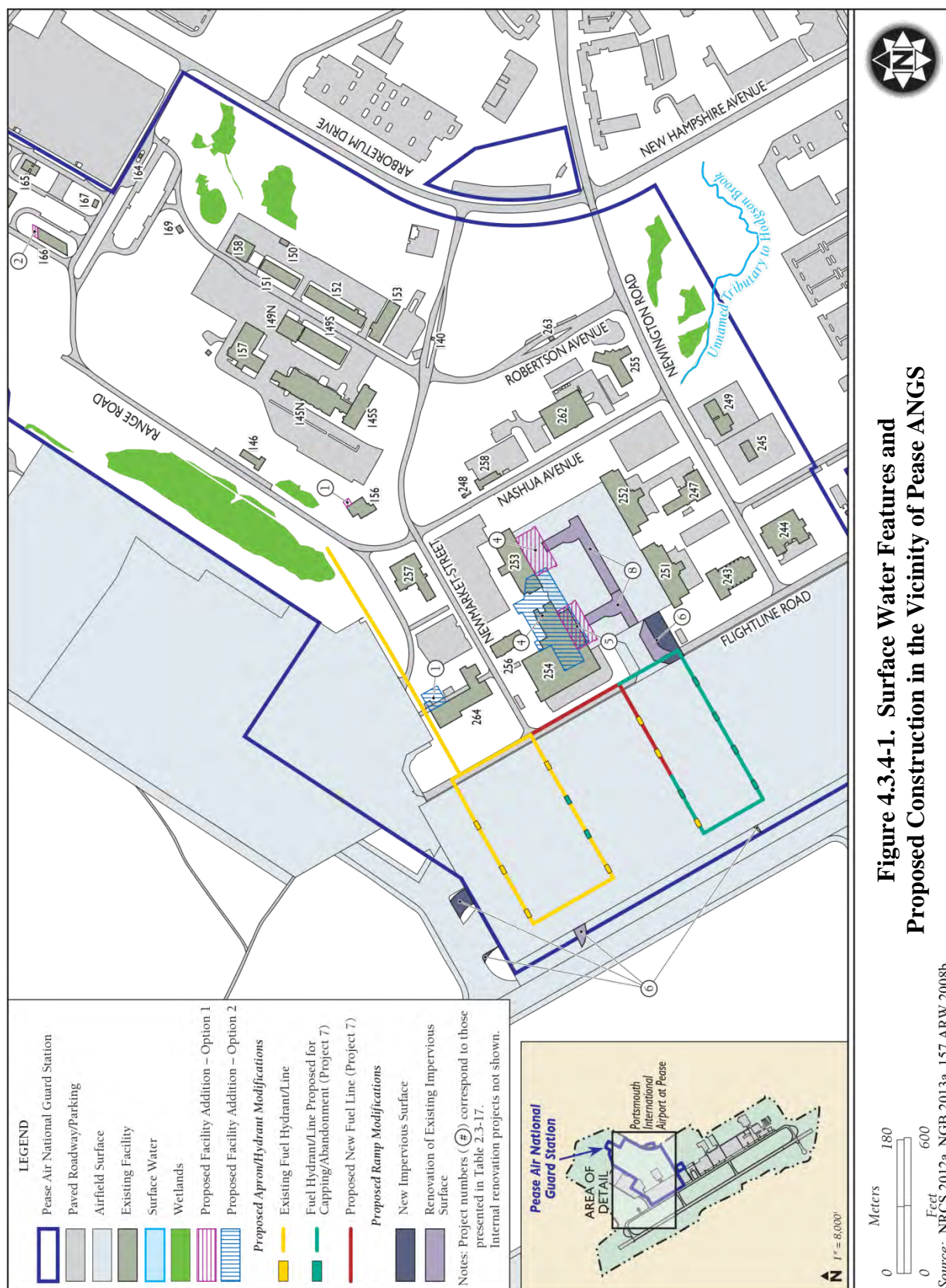
#### 4.3.4.2 Surface Water

As a result of implementation of Alternative #3, there would be approximately 23,617 SF (0.5 acre) of new impervious surface from the proposed construction (Figure 4.3.4-1). This could result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:

- water harvesting and natural open space,
- installation of retention/detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #3 would be minimal.



#### 4.3.4.3 Groundwater

As a result of Alternative #3, the increase in the amount of impervious surface (0.5 acre) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices, as described above. The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.3.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.3.4.5 Summary of Impacts

There would be approximately 3.0 acres of temporary soil disturbance and 0.5 acre of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### 4.3.5 Biological Resources

#### 4.3.5.1 Vegetation

Construction of new facilities associated with Alternative #3 at the 157 ARW installation would occur primarily on currently paved areas or actively managed (i.e., mowed and landscaped) areas, and would result in an increase of 23,617 SF (0.5 acre) of impervious surfaces. No native vegetation would be impacted. Impacts to the vegetation at the installation would be negligible due to the lack of sensitive vegetation in the project area.

#### 4.3.5.2 Wildlife

Under Alternative #3, impacts to wildlife due to construction would be minor. Noise associated with construction may cause wildlife to temporarily avoid the area, including those that are protected under the MBTA. Noise associated with construction activities, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Operational noise levels under Alternative #3 would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft. Under Alternative #3, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #3, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.). In addition, an additional 4 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. As a result, since ambient noise levels within the vicinity are relatively high under existing conditions, the Proposed Action under Alternative #3 would be unlikely to substantially increase enough to preclude wildlife from utilizing the area as they currently do.

Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #3, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the KC-46A at Portsmouth IAP would increase by approximately 44 percent over the KC-135 baseline operations (7 percent increase in total airfield operations). An increase in airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.3.3, *Safety*). The 157 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches,

closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.3.5.3 Special Status Species

No federally threatened and endangered species and eight state listed species are currently known to occur on Portsmouth IAP. The USFWS New England Field Office concurred in a letter written on March 25, 2014 that no federally listed or proposed, threatened or endangered species or critical habitat are known to occur in the project area. There is only a low potential for additional species to occur within the vicinity due to the lack of habitat. Under Alternative #3, impacts to special status species would be similar to that described under wildlife. Impacts due to construction and proposed operations would be minor. Operational noise levels under Alternative #3 would be expected to increase slightly from baseline with the conversion to the KC-46A aircraft. Under Alternative #3, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #3, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.). In addition, an additional 4 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. As a result, since ambient noise levels within the vicinity are relatively high under existing conditions, the Proposed Action under Alternative #3 would be unlikely to substantially increase enough to preclude wildlife from utilizing the area as they currently do.

Therefore, there would be no effect to federally listed species and impacts to state listed species would be minimal under Alternative #3.

#### 4.3.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #3.

#### 4.3.5.5 Summary of Impacts

Construction of new facilities associated with this alternative would occur primarily on currently paved areas or actively managed areas. Therefore, impacts to vegetation would be negligible. There would be no impacts to wetlands under this alternative. Impacts to wildlife and sensitive species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction. A 44 percent increase in 157 ARW (7 percent increase

in total) airfield operations may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Impacts to state listed species would be minor. No federally listed species or critical habitat is known to occur on Portsmouth IAP, therefore there would be no impacts to federally listed species.

#### **4.3.6 Cultural Resources**

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,382 to 1,553 would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

##### **4.3.6.1 Archaeological Resources**

The entire undeveloped 157 ARW installation has been intensively surveyed for archaeological resources and it has been determined that no NRHP-eligible archaeological resources are present on the installation. The New Hampshire SHPO has concurred with this determination (157 ARW 2009, Muzzey 2009). In the unlikely event that archaeological or human remains are identified during construction, all activities in the area of the discovery would cease and the Environmental Manager would contact a qualified archaeologist to evaluate the discovery. Under these conditions, there would be no adverse impact to archaeological resources with implementation of Alternative #3.

##### **4.3.6.2 Architectural Resources**

At the 157 ARW installation, six buildings (Buildings 156, 166, 251, 253, 254, and 264) are proposed for additions, interior renovations, or demolition. Buildings 251, 253, and 254 have been inventoried, evaluated, and determined not eligible to the NRHP with concurrence from the New Hampshire SHPO (see Muzzey 2009 and St. Louis 2009 in Appendix B4). Buildings 156, 166, and 264 were all recently constructed and so they are less than 50 years old, are not Cold War-era resources, and would not be eligible under Criteria Consideration G. As such, Buildings 156, 166, and 264 are not eligible to the NRHP. SHPO consultation for this EIS has provided concurrence that no historic resources are present within the proposed project area (see Appendix B3). Therefore, there would be no impact to architectural resources as a result of implementation of Alternative #3.

##### **4.3.6.3 Traditional Resources**

The 157 ARW installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the



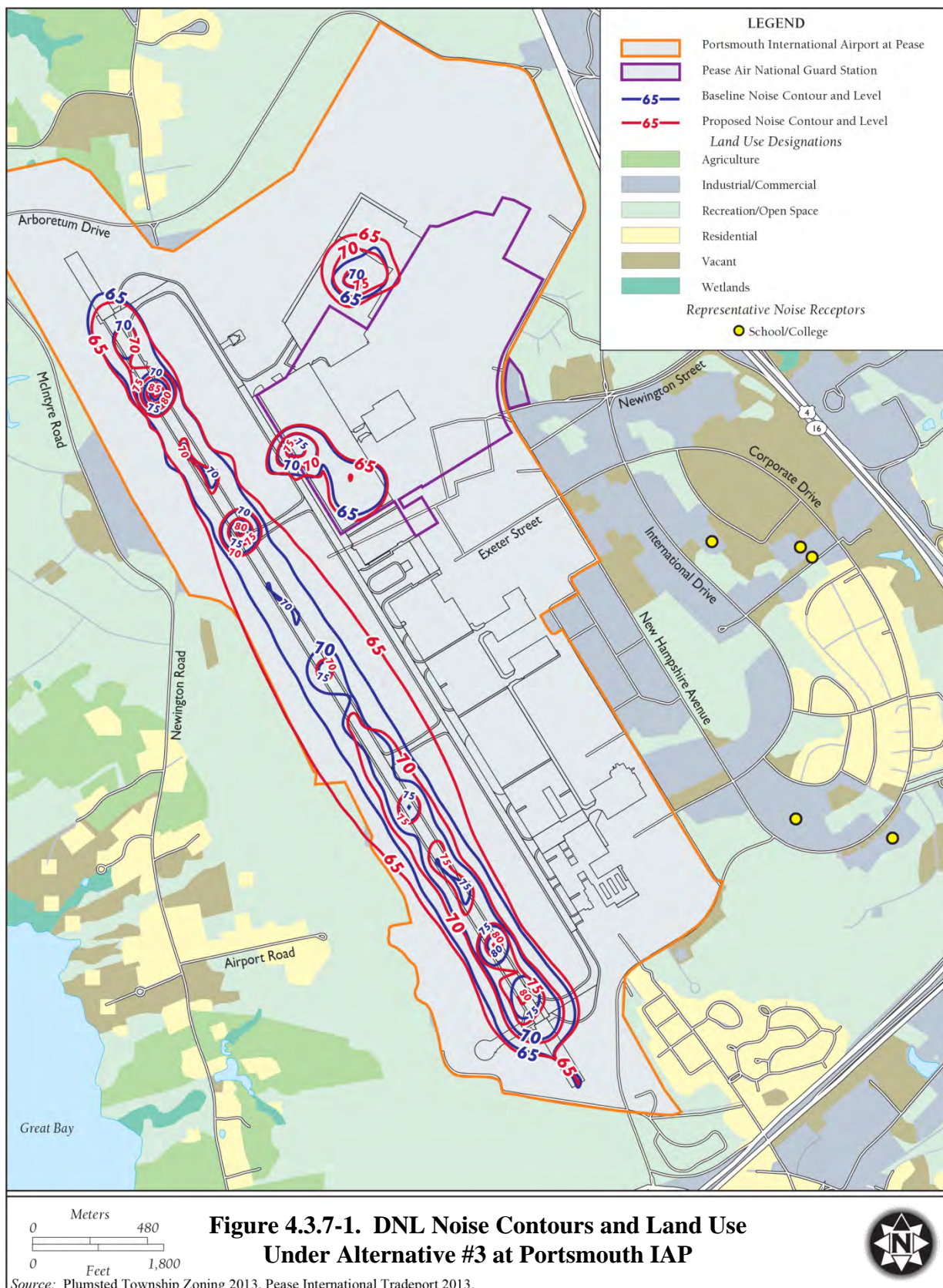
157 ARW. Government-to-government consultation for this action has been conducted with this Tribe in recognition of their status as a sovereign nation. This consultation also provides information regarding tribal concerns per Section 106 of the NRHP and information on traditional resources that may be present on or near the installation. The Penobscot Indian Nation has responded and indicated that they have no issues with the Proposed Action. The NGB and the USAF values its relationship with tribes and will continue to seek opportunities to consult on other planning efforts or matters of known/potential interest to tribes.

#### 4.3.6.4 Summary of Impacts

Construction activities associated with this alternative would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. None of the buildings that would be impacted under the Proposed Action are eligible to the NRHP. The New Hampshire SHPO has concurred with the determination that no historic properties would be affected (Muzzey 2013). No traditional resources are known to occur at the installation. Therefore, no impacts to cultural resources are anticipated at the 157 ARW installation under Alternative #3.

#### 4.3.7 Land Use

Under this alternative, the number of operations at Pease ANGTS would increase, resulting in a slight increase in average noise levels as measured as discussed in Section 3.3.1, *Noise*. An additional 4 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. The majority of this area is zoned for Open Space/Conservation, which under FAA Regulation 14 CFR Part 150, effective January 18, 1985, is considered a compatible land use up to within this range of noise exposure. The primary source of impacts to land use resulting from Alternative #3 would be from noise. As shown in Table 4.3.7-1 and Figure 4.3.7-1, new areas outside of the airport boundaries would be exposed to DNL of 65 dB to 70 dB. By zoning areas, Recreation areas affected by DNL of 65 dB to 70 dB would remain the same; Open Space areas would increase by approximately 3.6 acres; and non-designated areas would increase by less than 1 acre. However, all of these land uses are considered compatible with this range of DNL under FICUN. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB DNL off-airport noise contour areas. Therefore, Alternative #3 is compatible with current land use and zoning designations and would result in negligible impacts. A more detailed discussion of aircraft operations and noise under Alternative #3 can be found in Section 4.3.1, *Noise*.



**Table 4.3.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Portsmouth IAP**

<i>Land Use</i>	<i>Baseline Total (acres)</i>	<i>Proposed Total (acres)</i>	<i>Change Total (acres)</i>
Recreation	0	0	0
Open Space	0	3.6	3.6
Non-designated	0	0.3	0.3
<b>Total Area</b>	<b>0</b>	<b>3.9</b>	<b>3.9</b>

#### 4.3.7.1 Summary of Impacts

The number of total annual airfield operations would increase by 2,700 (7 percent), and the acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres. Of this increase in acreage, 4 acres would be off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts due to an increase in off-airport areas exposed to noise levels above 65 dB DNL. Airport Hazard Areas would not be affected.

### 4.3.8 Infrastructure and Transportation

#### 4.3.8.1 Potable Water

Water consumption would be expected to increase slightly under Alternative #3 as a result of the increase in personnel; however, an increase in 128 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

#### 4.3.8.2 Wastewater

Wastewater generation would be expected to increase slightly as a result of the increase in 128 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

#### 4.3.8.3 Stormwater

Under Alternative #3, there would be up to 130,966 SF (3.0 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.3.4, *Soils and Water*); however, through implementation of appropriate standard construction practices, (as described previously),

preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 23,617 SF (0.5 acre) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.3.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #3 would be minimal.

#### 4.3.8.4 Electrical and Natural Gas Systems

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with this alternative would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #3 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.3.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 130,966 SF of additions and alterations to existing facilities and 23,617 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Pease ANG S would generate 1,544,089 pounds (772 tons) of renovation debris requiring landfill disposal and proposed new construction at Pease ANG S

would generate 102,498 pounds (51 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at Pease ANGTS would be 823 tons.

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Turnkey Recycling and Environmental Enterprise Landfill has a remaining life expectancy of 7 years and a permitted throughput of 900,000 tons per year (New Hampshire Department of Environmental Services 2009). The 823 tons of proposed construction debris generated at Pease ANGTS would represent less than 1 percent of the yearly capacity of the landfill. Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 157 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.3.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 128 under Alternative #3 (see Table 2.3-18). The increase in personnel would create a potential 128 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #3 would add an additional 256 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well

as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation and level of service. Therefore, impacts to transportation infrastructure would not be significant under Alternative #3.

#### 4.3.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increased demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### 4.3.9 Hazardous Materials and Waste

#### 4.3.9.1 Hazardous Materials

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #3.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #3, the total number of flying hours for the 157 ARW would increase from 6,219 to 8,040 (a 29 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be



required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 157 ARW installation would continue to be followed in future operations associated with Alternative #3 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #3, additions and renovations to Buildings 156, 264, 166 and Hangars 251, 253, and 254 are proposed. According to the 1997 asbestos report, Hangars 251 and 254 were found to contain ACM in the insulation, floor tiles, and mastic. A LBP survey has not been conducted at the 157 ARW installation. However, Hangars 251, 253, and 254 were built prior to 1978 and may contain LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, New Hampshire requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.3.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft, with the exception of ODSs. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #3, the total number of flying hours for the 157 ARW would increase approximately 29 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.3.9.3 Environmental Restoration Program

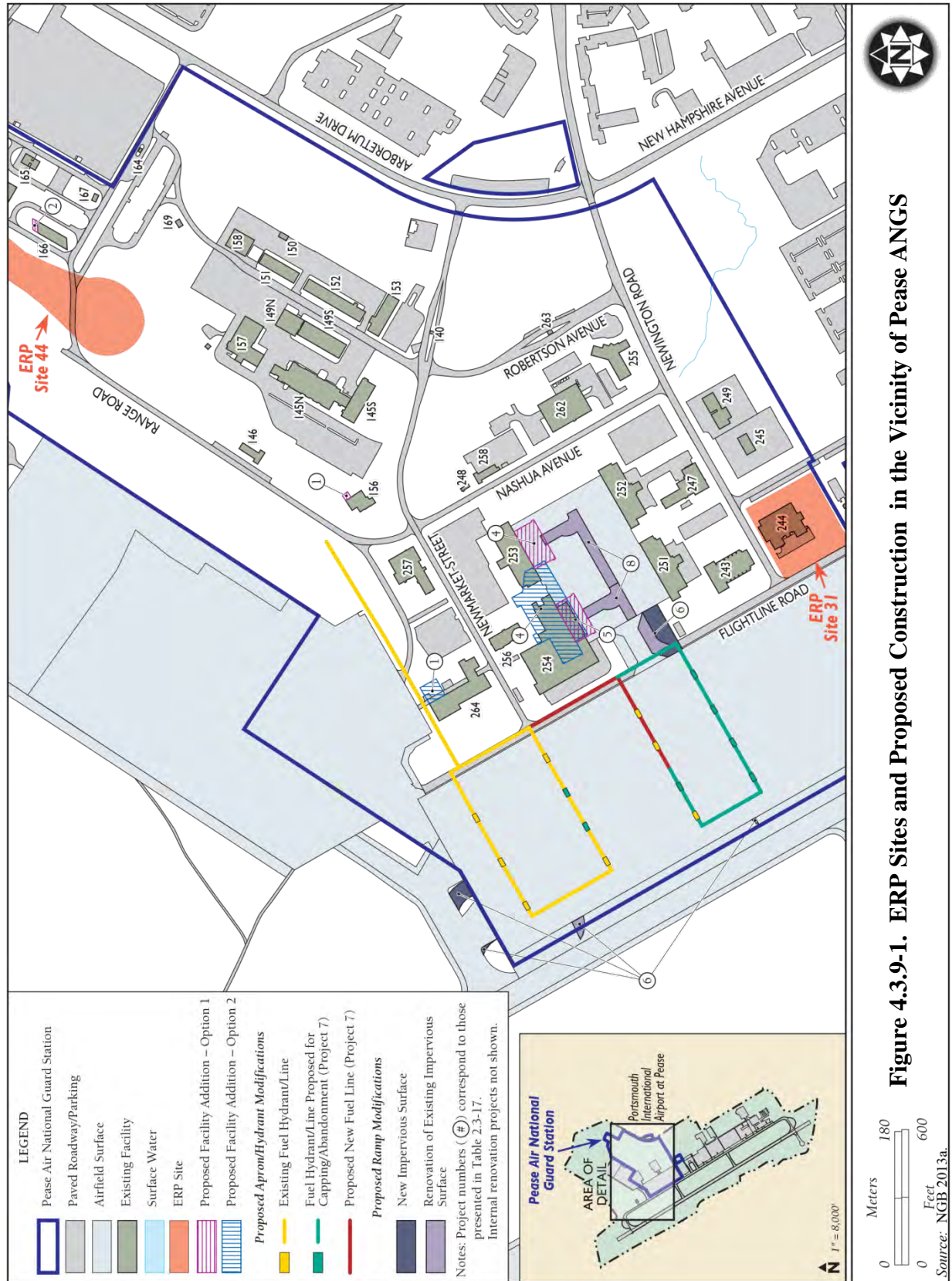
In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the



selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

None of the ERP sites overlap the proposed construction projects under Alternative #3 (Figure 4.3.9-1). If contaminated media (e.g., soil, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 157 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.



#### 4.3.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites as there are no sites that overlap with areas proposed for ground disturbance. Impacts relative to hazardous materials and wastes would be negligible.

#### 4.3.10 Socioeconomics

Under Alternative #3, construction activities would be contained entirely within the boundaries of Portsmouth IAP. Economic activity associated with proposed construction activities at the 157 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities under this alternative would result in a change in staffing requirements for the 157 ARW. Currently, the 157 ARW is authorized 1,382 personnel. Under Alternative #3, the KC-46A mission would add an additional 171 military positions (increase in 115 full-time positions and 56 traditional Guard positions) (see Table 2.3-18). Combined with their approximately 233 family members, this would represent less than 0.08 percent of Rockingham County. Of the 233 family members, approximately 92 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Rockingham County. It is anticipated that there is enough capacity within the schools in this county to absorb this minimal increase in school age children.

An increase in 171 military personnel positions would amount to an increase of approximately 12 percent to the existing 157 ARW personnel. Total payroll associated with the 115 full-time personnel would amount to a total estimated annual salary increase of approximately \$9.5 million.

All 157 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 171 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.13 percent of the total housing units in Rockingham County. However, not all the military personnel who would relocate would own homes.

#### 4.3.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

### **4.3.11 Environmental Justice and the Protection of Children**

#### 4.3.11.1 Minority and Low-Income Populations

Under Alternative #3, there would be no residential populations, including no minority or low-income populations, located within the vicinity of Portsmouth IAP exposed to DNL greater than 65 dB. Therefore, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Portsmouth IAP.

#### 4.3.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there is no off-installation Kindergarten through Grade 12 schools that are exposed to DNL of 65 dB or above. Under Alternative #3 there would be no new Kindergarten through Grade 12 schools exposed to DNL of 65 dB or above. Therefore, under Alternative #3 there would be no special health or safety risks to children.

#### 4.3.11.3 Summary of Impacts

Although the acreage within the 65 dB DNL noise contours would increase slightly under this alternative, there are no residential areas within the noise contours and no additional schools would be located within the vicinity of Portsmouth IAP exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations and no special health or safety risks to children.

#### **4.4 ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION**

##### **4.4.1 Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #4 are considered and compared with current conditions associated with the most current approved and published baseline noise study to assess potential impacts. Details of the noise modeling methodologies used for this section can be found in Appendix A, Section A.1.2.

Actual 2012 KC-135 airfield operations were identified in Table 2.3-19. This data was used in determining the proposed KC-46A airfield operations based on most current home-station sorties and airfield operations to provide a more accurate determination of the number of airfield operations for the Proposed Action. Under this analysis, the proposed airfield operations are compared to the most current approved and published 2006 baseline noise study for Pittsburgh IAP.

The DNL noise contours for the KC-46A under Alternative #4 were generated using INM. Based KC-135 operations were removed and replaced with KC-46A operations using the B-767-300 and the standard flight profile data provided with INM as substitute data and applying the data to the current based KC-135 flight tracks and operational procedures (INM does not have a standard profile or noise curve data for the KC-46A). Using the standard flight profile data provided for this substitute aircraft in INM provides an accurate analysis of noise contour comparisons that would be expected with the new KC-46A. Flight profiles, flight tracks, and operational procedures currently being used by the KC-135 were used in this INM program.

##### **4.4.1.1 Aircraft Noise**

Under Alternative #4, 12 KC-46As would be based at Pittsburgh ANG, replacing the current 16 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield and the KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. KC-46A aircraft flight profiles would continue to fly the same standard flight profiles for departures and arrivals and closed pattern airfield training. KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135; however most tactical procedures would be accomplished in the simulator and at the other locations away from Pittsburgh IAP.

Under Alternative #4, the 171 ARW aircraft would fly a total of 8,040 hours resulting in 2,010 annual sorties of which it is expected that up to 1,186 sorties would be flown at Pittsburgh ANG. Baseline conditions for the KC-135 are represented here as the same number of the Pittsburgh ANG airfield operations published in the Pittsburgh IAP FAR Part 150 Study (ACAA 2006). Based on 1,186 annual home-station sorties with an average of 7.78 operations per sortie, there would be 9,226 annual home-station operations, or a reduction of 3,834 airfield operations annually at Pittsburgh IAP. This would decrease the average daily airfield operations from 35.8 to 25.3 as shown in Table 4.4.1-1. The 171 ARW KC-46A operations would be approximately 3 percent of all aircraft operations at the airfield under the current approved FAR Part 150 Noise Compatibility Update.

**Table 4.4.1-1. Changes to Pittsburgh IAP Airfield Operations with Proposed KC-46A  
Based on FAR Part 150 Baseline**

<i>Unit</i>	<i>Total Based KC-135 (Average Daily Airfield Operations)</i>	<i>Total Based KC-46A (Average Daily Airfield Operations)</i>	<i>Change in Airfield Operations for Proposed KC-46A (% Change)</i>
171 ARW	13,060 <sup>1</sup> (35.8)	9,226 (25.3)	-3,834 (-29.3%)

Note: 1. Operations based on currently approved FAR Part 150.

All operations would remain as described under existing conditions; however, the KC-135 would be replaced by the KC-46A. There would be no changes expected to departure/arrival patterns and tracks, and use of runways. Current noise abatement procedures would continue to be followed as documented in Section 3.4.1.4.

Table 4.4.1-2 provides details on the total airfield operations for Pittsburgh IAP under Alternative #4 using the most current FAR Part 150 as the baseline operations. There would be a 1.2 percent decrease in the overall airfield operations from the current baseline operations. There would be approximately 7 percent of the KC-46A airfield operations flown during environmental night. The total number of operations flown by all other aircraft at Pittsburgh IAP would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

**Table 4.4.1-2. Pittsburgh ANG Aircraft Operations with Proposed KC-46A**

<i>Aircraft</i>	<b>DEPARTURES</b>		<b>ARRIVALS</b>		<b>TOTAL<sup>1</sup></b>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	4,287	326	4,275	338	8,562	664	9,226
Other Aircraft <sup>3,4</sup>	140,683	13,505	140,683	13,505	281,366	27,010	308,376
<b>Total</b>	<b>144,970</b>	<b>13,831</b>	<b>144,958</b>	<b>13,843</b>	<b>289,928</b>	<b>27,674</b>	<b>317,602</b>

- Notes:
1. Includes Closed Patterns (which count as two airfield operations).
  2. Night –Between 10 p.m. and 7 a.m. for environmental night.
  3. Other Based aircraft and Transient Aircraft (multiple type aircraft) including: Boeing 747, 717, and the Airbus 321.
  4. Operations based on currently approved FAR Part 150.

Figure 4.4.1-1 depicts the noise exposure area from the aircraft operations after the conversion from the current 16 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.4.1-2 compares baseline noise contours with Alternative #4 contours. The aircraft operations modeled include all transient aircraft and general and commercial aircraft operations depicted in the current approved 2006 FAR Part 150 Noise Compatibility Update. Table 4.4.1-3 shows changes to the acreage of land within each noise contour under Alternative #4.

**Table 4.4.1-3. Land Areas within DNL Contours at Pittsburgh IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #4**

Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #4 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	1,331.5	128.6	1,460.1	1,511	106	1,405	-55
70-75	850.7	0	850.7	915	0	915	64
75-80	468.6	0	468.6	418	0	418	-51
80-85	151.5	0	151.5	159	0	159	8
>85	207.5	0	207.5	162	0	162	-46
<b>Total</b>	<b>3,009.8</b>	<b>128.6</b>	<b>3,138.4</b>	<b>3,165</b>	<b>106</b>	<b>3,059</b>	<b>-79</b>

Notes: DNL = Day Night Average Sound Level; dB = decibel

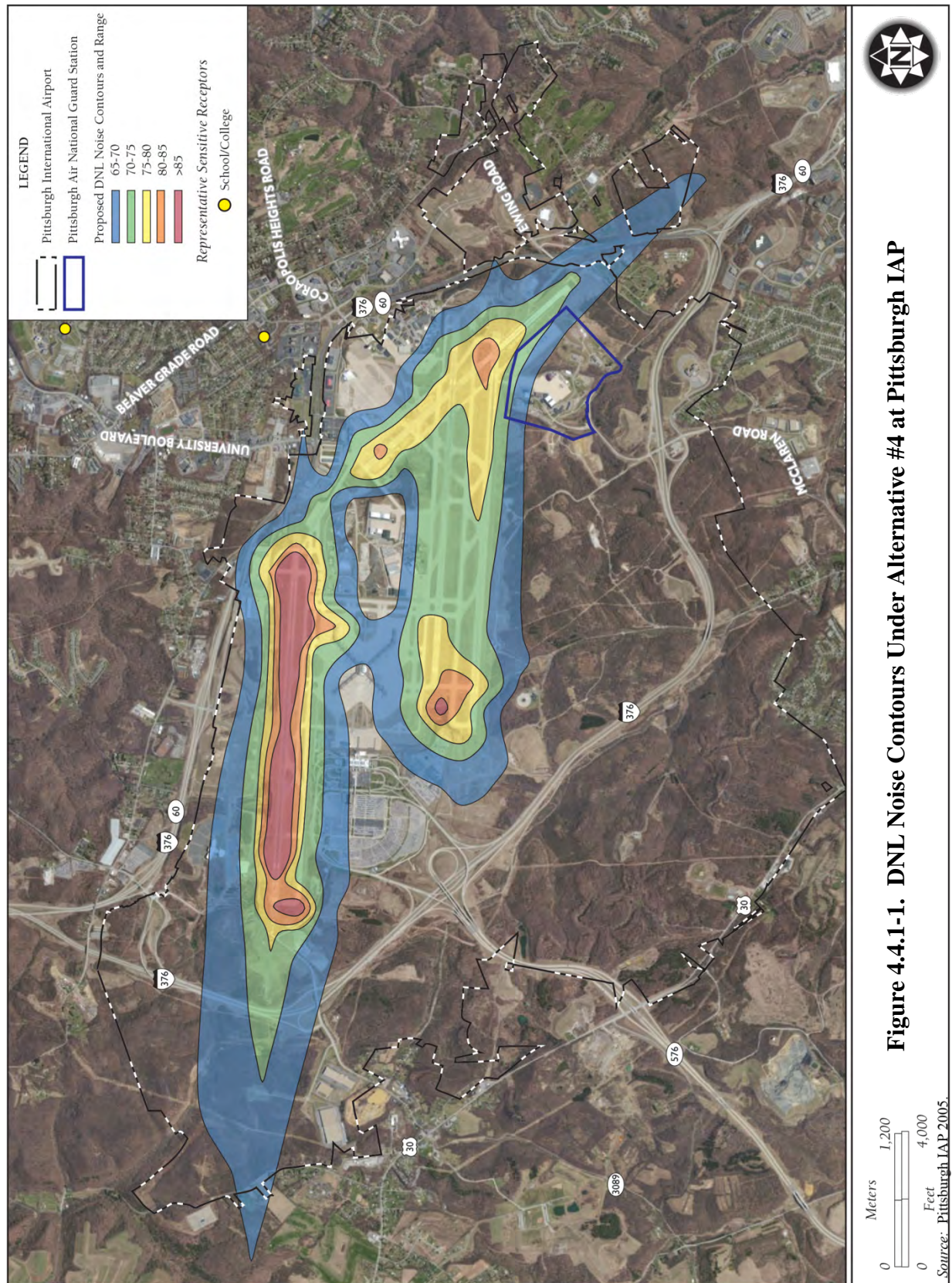
Under Alternative #4, the DNL noise contours would decrease slightly in the areas of arrivals and departures from the DNL baseline contours because of fewer KC-46A airfield operations than depicted in the approved FAR Part 150 and the KC-46A is generally a quieter aircraft (5 dB quieter on landing and 1 dB louder on take-off) than the KC-135.

Overall, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 79 acres, or approximately 2.5 percent, and would remain primarily on airport property with approximately 106 of the acres off airport property. Information regarding the number of people residing in the area can be found in Section 4.4.11, *Environmental Justice and the Protection of Children* and information regarding the area of residential use is located in the Section 4.4.7, *Land Use*.

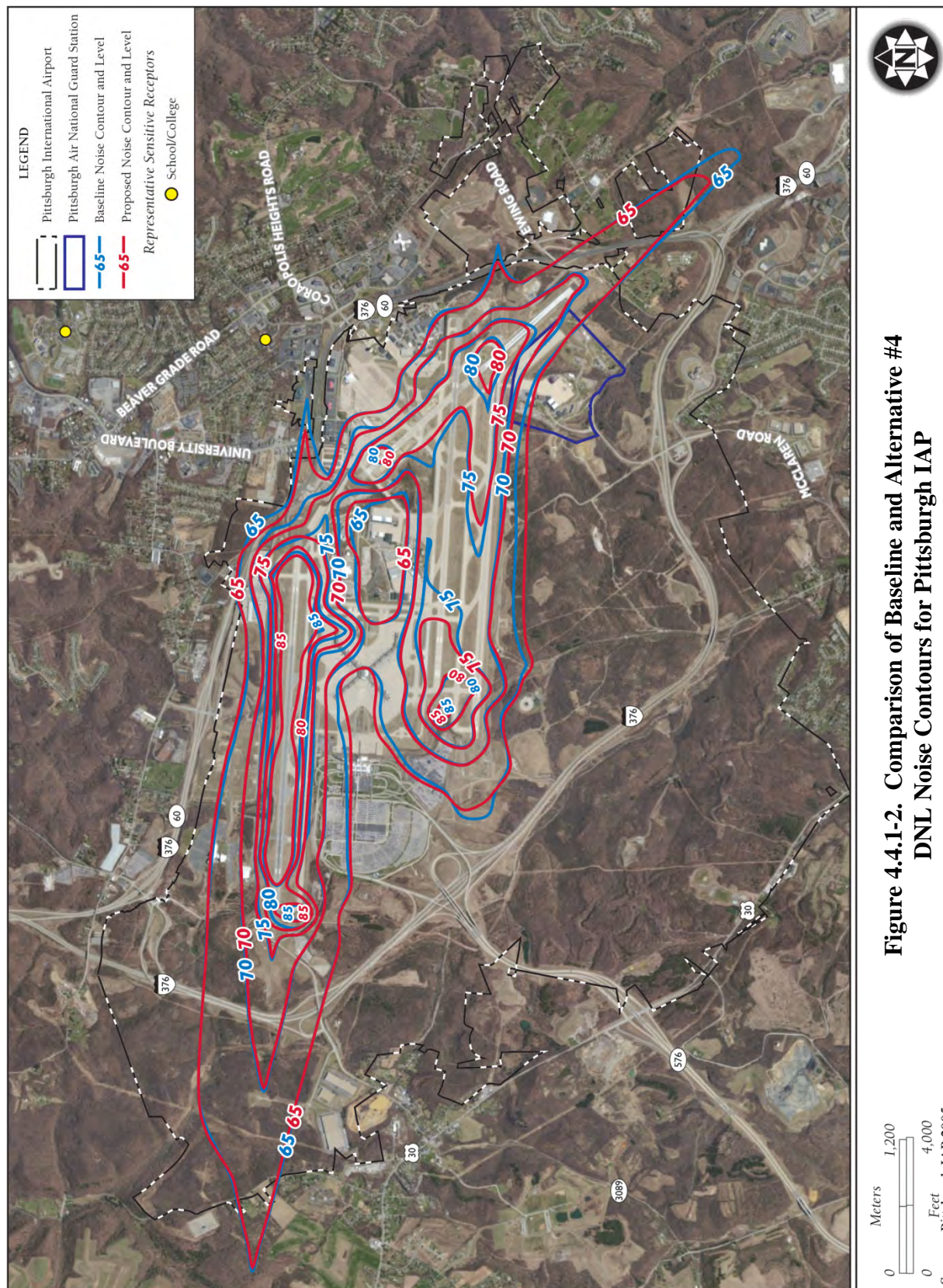
#### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #4 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above a DNL of 65 dB.









### *Single Event Sound Analysis*

Under Alternative #4, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1-1 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #4, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 7 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

### *Potential Hearing Loss*

As shown in Table 4.4.1-3, there is no property off the Pittsburgh IAP that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.4.1.2 Construction Noise

There would be some minor temporary noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006) (see Appendix C, *Noise*, Section A.1.2.2). Aviation-related activities at Pittsburgh IAP dominate the local noise environment. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #4 would be negligible.

#### 4.4.1.3 Summary of Impacts

The number of 171 ARW airfield operations would decrease by 3,834 (29 percent decrease from the currently published FAR Part 150 Noise Compatibility Program; and a 2 percent increase in actual 2012 airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 88 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 106 acres off airport-controlled property that lie within the 65 dB contour. There would be no potential for hearing loss off the airport and no increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### 4.4.2 Air Quality

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 171 ARW of the PA ANG at Pittsburgh IAP, approximately 12 miles northwest of Pittsburgh, Pennsylvania. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Pittsburgh IAP were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Allegheny County is a nonattainment area for O<sub>3</sub> (moderate) and PM<sub>2.5</sub>, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, and PM<sub>2.5</sub> was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #4.

##### 4.4.2.1 Operational Emissions

Sources associated with operation of the proposed KC-46A beddown at Pittsburgh IAP include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the 2012 baseline airfield analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.4.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Pittsburgh IAP. Table 4.4.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Pittsburgh IAP. As shown in Table 4.4.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.4.2-1. Comparison of Baseline and Proposed  
Annual Operational Emissions, 171 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	3.42	50.69	67.79	6.14	0.33	0.33
AGE	0.01	0.01	0.10	0.00	0.00	0.00
Engine Tests	0.11	1.67	0.46	0.07	0.01	0.01
POVs	4.27	65.56	3.37	0.05	0.14	0.06
<b>Total</b>	<b>7.81</b>	<b>117.93</b>	<b>71.72</b>	<b>6.26</b>	<b>0.48</b>	<b>0.40</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	20.22	73.83	158.42	9.37	0.66	0.56
AGE	0.01	0.02	0.13	0.00	0.01	0.01
Engine Tests	0.80	2.75	0.74	0.09	0.01	0.01
POVs	3.44	58.54	2.52	0.05	0.14	0.06
<b>Total</b>	<b>24.48</b>	<b>135.14</b>	<b>161.81</b>	<b>9.51</b>	<b>0.81</b>	<b>0.64</b>
<b>Net Increase</b>	<b>16.67</b>	<b>17.21</b>	<b>90.09</b>	<b>3.24</b>	<b>0.33</b>	<b>0.24</b>
<b>MOB2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>2.13</b>	<b>0.15</b>	<b>1.26</b>	<b>0.52</b>	<b>0.69</b>	<b>0.60</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>250</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Pittsburgh IAP would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 tpy.

Table 4.4.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at Pittsburgh IAP, along with the net increase in comparison with the baseline. As shown in Table 4.4.2-2, emissions are below the PSD thresholds for GHGs.



**Table 4.4.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 171 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	16,909	0.47	0.53	17,082
AGE	2,370	0.07	0.08	2,395
Engine Tests	196	0.01	0.01	198
POVs	2,270	0.00	0.00	2,270
<b>Total</b>	<b>21,746</b>	<b>0.54</b>	<b>0.61</b>	<b>21,946</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	25,411	0.66	0.74	25,655
AGE	3,035	0.09	0.10	3,067
Engine Tests	243	0.01	0.01	245
POVs	2,274	0.00	0.00	2,274
<b>Total</b>	<b>30,963</b>	<b>0.75</b>	<b>0.85</b>	<b>31,242</b>
<b>Net Increase</b>	<b>9,218</b>	<b>0.21</b>	<b>0.24</b>	<b>9,296</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

*Notes:* Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.4.2.2 Construction Emissions

The KC-46A beddown at Pittsburgh IAP would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.4.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Pittsburgh IAP. As shown in Table 4.4.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.4.2-3. Annual Construction Emissions Under Alternative #4**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 - Addition to Hangar 302	1.64	2.61	0.46	0.05	2.70	2.04	871.93
Project #2 - Addition to Hangar 320	1.54	2.44	0.43	0.05	2.48	1.90	817.22
Project #3 - Internal Renovations to Hangar 301	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 - Modifications to Existing Parking Ramp and Taxiway	3.84	9.13	0.95	0.45	5.14	2.61	2,267.97
Project #5 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.02	0.03	0.01	0.00	0.00	0.00	11.06
<b>Total</b>	<b>7.33</b>	<b>14.68</b>	<b>1.91</b>	<b>0.56</b>	<b>10.37</b>	<b>6.60</b>	<b>4,090.77</b>
<b>PSD/de minimis Threshold</b>	<b>250</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.4.2.3 Summary of Impacts

The Pittsburgh ANGS is located within a non-attainment area for PM<sub>2.5</sub>, a moderate nonattainment area for the 1997 8-hour O<sub>3</sub> standard, and is classified as a marginal nonattainment area for the 2008 8-hour O<sub>3</sub> standard, according to 40 CFR 81.339. The Pittsburgh ANGS is therefore subject to *de minimis* thresholds. Impacts from proposed operational emissions would be less than significant for all criteria pollutants. Impacts from construction emissions and operational HAP emissions are negligible.

#### 4.4.3 Safety

##### 4.4.3.1 Ground Safety

Existing facilities at Pittsburgh ANGS for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013d).

To support the aircraft beddown at Pittsburgh ANGS, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities.

Proposed renovation and infrastructure improvement projects related to Alternative #4 would not impact aircraft take-off or landings or penetrate any RPZs (Headquarters AMC and NGB 2013d).



New construction and building renovation activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as those that have historically occurred at Pittsburgh IAP. For example, the KC-46A would follow established local approach and departure patterns. Therefore, flight activity and subsequent operations would not require changes to RPZs.

Under this alternative, no new facilities are proposed for Pittsburgh ANG. Planned construction at the base comprises renovation and additions to three hangars; modification to existing parking ramp and taxiway; and demolition and installation of new fuel hydrants and lines. Therefore, none of the construction or demolition would be in conflict with the current QD arcs.

No construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.4.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced; and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, Pittsburgh ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive

emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors would minimize risk associated with mishaps due to pilot error.

Under Alternative #4, there would be an increase of approximately 33 percent in 171 ARW operations (2 percent in total Pittsburgh IAP airfield operations) compared to existing conditions. This increase in take-offs, landings, proficiency training, and other flights would result in a commensurate increase in the safety risk to aircrews and personnel.

The proposed increase in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. Both the KC-135 and the commercial Boeing 767 have very low mishap rates and with a new airframe and technological improvements, the KC-46A would be expected to have a similar safety record. Current airfield safety procedures would continue to be implemented and additional airfield flight operations would adhere to established safety procedures (171 ARW 2010c).

Given the low likelihood of an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Pittsburgh IAP as a result of Alternative #4 are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.4.3.3 Summary of Impacts

There would be a 33 percent increase in actual 171 ARW airfield operations (2 percent increase in total airfield operations) at Pittsburgh IAP with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and

strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### **4.4.4 Soils and Water**

##### **4.4.4.1 Soils**

Under Alternative #4, new construction would consist of five separate projects resulting in 186,395 SF (4.3 acres) of new construction footprint and 88,529 SF (2.0 acres) of new impervious surface (Table 2.3-23). These proposed construction projects for aircraft conversion would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #4 would occur on Urban land-Culleoka complex. This soil type is not rated in road or small commercial building development and may require onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2013). Pursuant to the Farmland Protection Policy Act, the USAF determined that the land is not farmland subject to the Farmland Protection Policy Act; therefore, the Farmland Protection Policy Act does not apply to this alternative.

Under Alternative #4, there would be approximately 186,395 SF (4.3 acres) of temporary soil disturbance as a result of proposed construction. To minimize potential impacts to soil and water resources associated with erosion, runoff, and sedimentation during construction activity, standard construction practices as described in the 171 ARW SWPPP (171 ARW 2010a) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the state of Pennsylvania to obtain coverage under the General NPDES Permit for Stormwater Discharges Associated with Construction Activities (General Permit No. PAG-02) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Impacts to earth resources would be negligible.

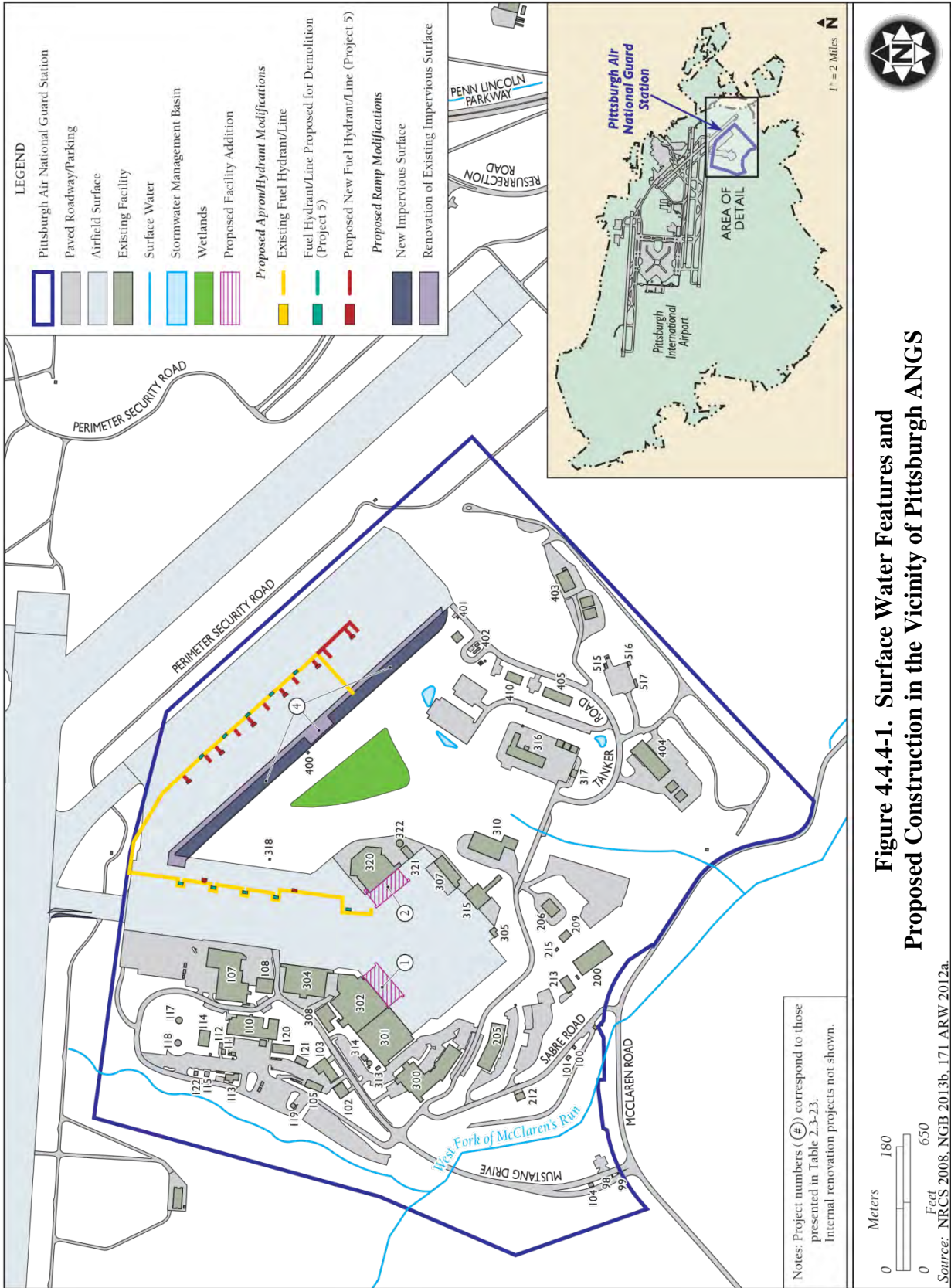
#### 4.4.4.2 Surface Water

As a result of implementation of Alternative #4, there would be approximately 88,529 SF (2.0 acres) of new impervious surface from the proposed construction (Figure 4.4.4-1). This could result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:

- water harvesting and natural open space,
- installation of retention/detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #4 would be minimal.



#### 4.4.4.3 Groundwater

As a result of Alternative #4, the increase in the amount of impervious surface (2.0 acres) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices as described above and in the 171 ARW SWPPP (171 ARW 2010a). The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.4.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.4.4.5 Summary of Impacts

There would be approximately 4.3 acres of temporary soil disturbance and 2.0 acres of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### 4.4.5 Biological Resources

#### 4.4.5.1 Vegetation

Construction of new facilities associated with Alternative #4 at the 171 ARW installation would occur on currently paved areas or actively managed (i.e., mowed and landscaped) areas, and would result in an increase of 88,529 SF (2.0 acres) of impervious surfaces. No native vegetation would be impacted. Impacts to the vegetation at the installation would be negligible due to the lack of sensitive vegetation in the project area.

#### 4.4.5.2 Wildlife

Under Alternative #4, impacts to wildlife due to construction would be minor. Noise associated with construction may cause wildlife to temporarily avoid the area, including those that are protected under the MBTA. Noise associated with construction activities, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Under Alternative #4, impacts to wildlife due to proposed operations would be minor. Annual operations for the KC-46A at Pittsburgh IAP would be projected to increase by approximately 33 percent over the KC-135 baseline operations (2 percent increase in total airfield operations) found on Table 2.3-21. An increase in levels of operations (e.g., sorties) may result in an increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. Adherence to the existing, BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.4.3, *Safety*). The 171 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.4.5.3 Special Status Species

No federally threatened and endangered species are currently known to occur on Pittsburgh IAP and there is only a low potential for them to occur within the vicinity due to the lack of habitat. In a letter dated April 2, 2014, the USFWS Pennsylvania Field Office concurred that no federally listed threatened or endangered species are known to occur within the project area. One state listed species (Torrey's Rush) is currently known to occur on Pittsburgh IAP; however, it would not be impacted by the proposed construction or operations. Therefore, Alternative #4 would have no effect on special status species.

#### 4.4.5.4 Wetlands

There are no wetland areas that occur within the proposed project footprints. The wetland that occurs within the vicinity of the project areas, between the east and west aircraft parking aprons,



would not be impacted from the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices as described in the 171 ARW SWPPP (171 ARW 2010a) would be implemented during and following the construction period. Such standard construction practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate. Following construction, disturbed areas not covered with impervious surface would be reestablished with appropriate vegetation and native seed mixtures and managed to minimize future erosion potential. Therefore, no significant impacts to wetlands would occur as a result of Alternative #4.

#### 4.4.5.5 Summary of Impacts

Construction of new facilities associated with this alternative would occur primarily on currently paved or actively managed areas. Therefore impacts to vegetation would be negligible. There would be no impacts to wetlands. Impacts to wildlife from operational noise would be minor due to the 33 percent increase in 171 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. No federally listed species or critical habitat and one state listed species is known to occur on Pittsburgh IAP. However, under Alternative #4 there would be no impacts to special status species.

#### 4.4.6 Cultural Resources

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,306 to 1,365 would be negligible as personnel would primarily be confined to the developed areas on the installation.

##### 4.4.6.1 Archaeological Resources

The only undisturbed portion of the 171 ARW installation in the southwest portion was intensively surveyed for archaeological resources and no NRHP-eligible archaeological resources were located. The Pennsylvania SHPO concurred with the results of this archaeological survey (171 ARW 2012b, McLearen 2011). In the unlikely event that archaeological or human remains are identified during construction, all activities in the area of the discovery would cease and the Environmental Manager would contact a qualified archaeologist to evaluate the discovery. Under these conditions, there would be no adverse impacts to archaeological resources as a result of Alternative #4.

#### 4.4.6.2 Architectural Resources

Three buildings are proposed for interior renovations or additions at the 171 ARW installation (Buildings 301, 302, and 320). None of these buildings are eligible to the NRHP. Both 301 and 302 were inventoried and evaluated for NRHP eligibility in 2011 and the SHPO concurred with the recommendation that they were not eligible for listing in the NRHP (171 ARW 2012b, MacDonald 2011). Building 320 was built in 1997 and is therefore not eligible to the NRHP because it is less than 50 years old, does not fall within the Cold War-era, and has not achieved exceptional significance (meet Criterion Consideration G) for any other reason. SHPO consultation for this EIS has provided concurrence that the proposed project has no potential to adversely affect historic properties (see Appendix B3). There would be no adverse impacts to architectural resources as a result of implementation of Alternative #4.

#### 4.4.6.3 Traditional Resources

The 171 ARW installation contains no known traditional resources. Given the extensive development on the installation, it is unlikely that there are traditional resources located at the 171 ARW. Government-to-government consultation for this action has been conducted with each federally-recognized Tribe associated with the 171 ARW installation in recognition of their status as sovereign nations and in order to provide information regarding tribal concerns per Section 106 of the NRHP as well as information on traditional resources that may be present on or near the installation. Responses have been received from all the Tribes under consultation. On October 3, 2013 an e-mail from the Seneca Nation of Indians was received stating that they had no objection to the Proposed Action (see Toth 2013 in Appendix B2). On January 13, 2014, an e-mail from the Cayuga Nation of New York was received stating that they had no objection to the Proposed Action (see Halftown 2014 in Appendix B2). On January 17, 2014, the Onondaga Nation of New York stated that they had no objection to the Proposed Action via telephone call. On April 4, 2014, the Tonowanda Band of Seneca stated that they had no objection to the Proposed Action via telephone call. In a letter dated April 14, 2014, the Tuscarora Nation stated that they concur that the proposed project will have no effect on predetermined archaeological sites within the Area of Potential Effect. The NGB and the USAF values its relationship with tribes and will continue to seek opportunities to consult on other planning efforts or matters of known/potential interest to tribes.

#### 4.4.6.4 Summary of Impacts

Construction activities associated with this alternative are limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. Additionally, all undisturbed parts of the installation have been surveyed and no resources were present; the SHPO has concurred (McLearen 2011). The area is also considered to have a low potential for buried archaeological materials. None of the

buildings that would be impacted under the Proposed Action are eligible to the NRHP. The SHPO has concurred with this determination for Buildings 301 and 302 (MacDonald 2011). Building 320 is modern and does not meet any of the NRHP criteria for significance. No traditional resources are known to occur at the installation. Therefore, no impacts to cultural resources are anticipated at the 171 ARW installation under Alternative #4.

#### 4.4.7 Land Use

The primary source of impacts to land use resulting from Alternative #4 would be from noise. As shown in Table 4.4.7-1 and Figure 4.4.7-1, areas outside of the airport boundaries currently exposed to DNLs of 65 dB to 70 dB would decrease by approximately 23 acres, overall. By zoning districts, the Commercial area affected by DNL of 65 dB to 70 dB would decrease by approximately 27 acres; Mixed Use areas would increase by approximately 2 acres; Industrial areas would increase by approximately 3 acres; and Residential and Agricultural areas would remain approximately the same. There would be no change in the areas affected by DNL of 70 dB or greater. No additional houses, churches, schools or other sensitive noise receptors are located within the 65 dB DNL off-airport noise contour areas.

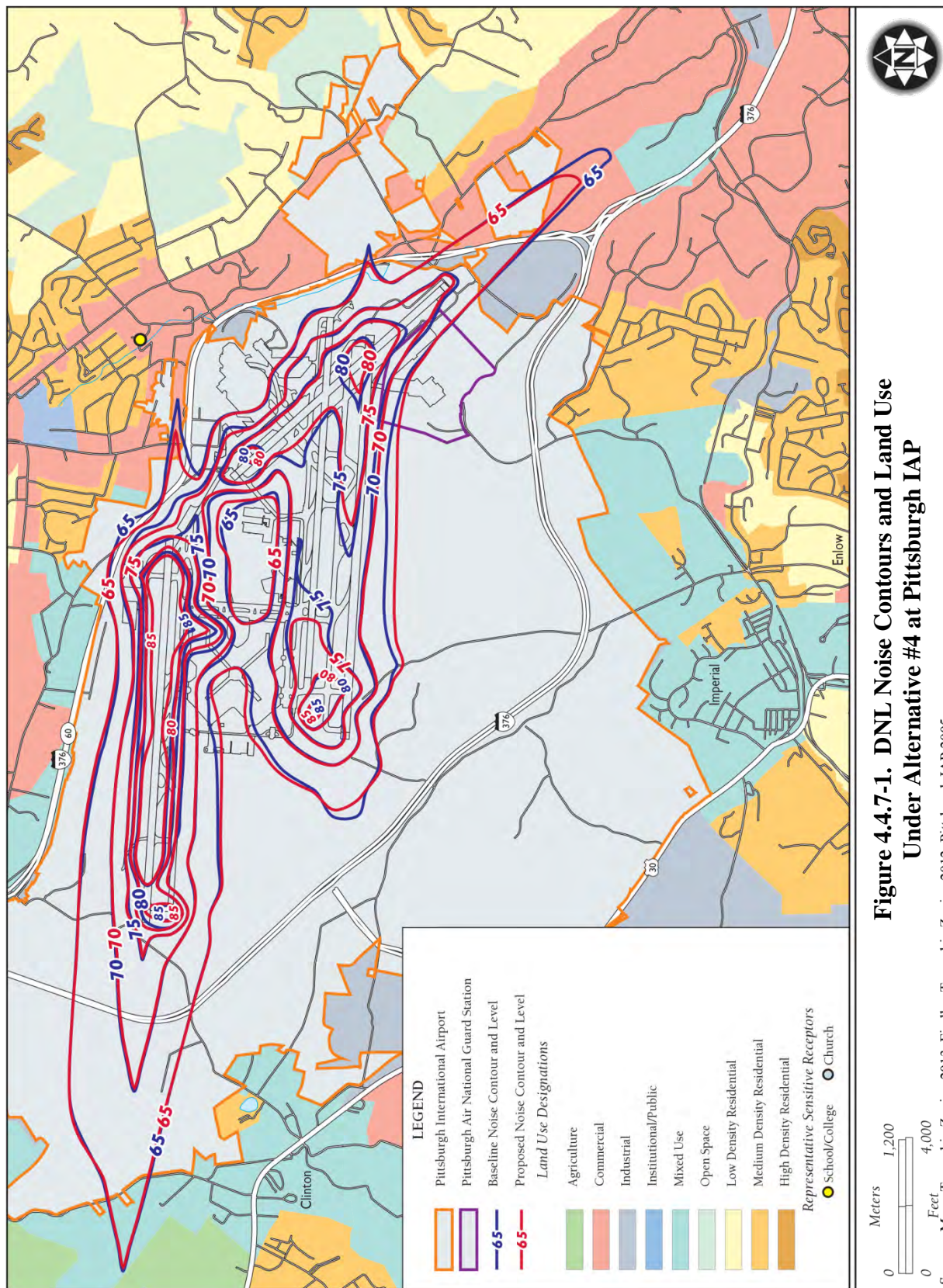
**Table 4.4.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Pittsburgh IAP Boundary**

Land Use	65 dB to 70 dB DNL			70 dB DNL +			65 dB to 80 dB DNL
	Baseline	Proposed	Change	Baseline	Proposed	Change	Change
Commercial	67.5	40.4	-27.1	-	-	-	-27.1
Mixed Use	25.1	27.4	2.3	-	-	-	2.3
Industrial	33.1	35.6	2.5	-	-	-	2.5
Residential	2.9	2.5	-0.4	-	-	-	-0.4
Agricultural	-	-	-	-	-	-	-
<b>Total Area</b>	<b>128.6</b>	<b>105.9</b>	<b>-22.7</b>	<b>-</b>	<b>-</b>	<b>-</b>	<b>-22.7</b>

A more detailed discussion of aircraft operations and noise can be found in Section 4.4.1, *Noise*.

##### 4.4.7.1 Summary of Impacts

The number of airfield operations would decrease by 3,834 (29 percent decrease) from the currently published FAR Part 150 Noise Compatibility Program, and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 79 acres. There would be a decrease of approximately 23 acres within the 65 dB DNL noise contour that are off airport-controlled property. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to noise levels above 65 dB DNL. Airport Hazard Areas would not be affected.



#### **4.4.8 Infrastructure and Transportation**

##### **4.4.8.1 Potable Water**

Water consumption would be expected to increase slightly under Alternative #4 as a result of the increase in personnel; however, an increase in 23 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact the regional water supply.

##### **4.4.8.2 Wastewater**

Wastewater generation would be expected to increase slightly as a result of the increase in 23 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

##### **4.4.8.3 Stormwater**

Under Alternative #4, there would be up to 186,395 SF (4.3 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.4.4, *Soils and Water*); however, through implementation of appropriate standard construction practices, preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 88,529 SF (2.0 acres) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.4.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #4 would be minimal.

##### **4.4.8.4 Electrical and Natural Gas Systems**

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require



additional electricity. However, any new facilities and additions associated with this alternative would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #4 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.4.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 186,395 SF of additions and alterations to existing facilities and 88,529 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Pittsburgh ANGTS would generate 2,197,597 pounds (1,099 tons) of renovation debris requiring landfill disposal and proposed new construction at Pittsburgh ANGTS would generate 384,216 pounds (192 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at Pittsburgh ANGTS would be 1,291 tons.

Solid waste generated as a result of the proposed construction could result in impacts to solid waste management facilities in the area. It is unknown what landfill would be used for construction debris since the construction contractor would choose the landfill. However, the Allied Waste Imperial Landfill, which is the closest to the installation, has a permitted throughput of 649,800 tons per year (Allegheny County 2009). The 1,291 tons of proposed construction debris generated at Pittsburgh ANGTS would represent 0.2 percent of the yearly capacity of the landfill. Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 171 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can

be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.4.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 23 under Alternative #4 (see Table 2.3-24). The increase in personnel would create a potential 23 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #4 would add an additional 46 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this minimal increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #4.

#### 4.4.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.



#### **4.4.9 Hazardous Materials and Waste**

##### **4.4.9.1 Hazardous Materials**

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under Alternative #4.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircraft.

Under Alternative #4, the total number of flying hours would increase from 6,016 to 8,040 (a 34 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth-moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 171 ARW installation would continue to be followed in future operations associated with Alternative #4 and as required during all construction and renovation activities.

##### *Toxic Substances*

Under Alternative #4, additions to Hangars 302 and 320 are proposed, and internal renovations to Hangar 301 are proposed. According to the 1991 asbestos report, Hangars 301 and 302 were found to contain ACM in the insulation, floor tiles, and mastic. A LBP survey has not been conducted at the 171 ARW installation. However, Buildings 301 and 302 were built before 1978 and therefore may contain LBP. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any

renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, Pennsylvania requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Removal and disposal of ACM and LBP may also require local permits and inspections (depending on volume or area being removed/renovated) through the Allegheny County Health Department. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.4.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #4, the total number of flying hours for the 171 ARW would increase by approximately 34 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. No changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.4.9.3 Environmental Restoration Program

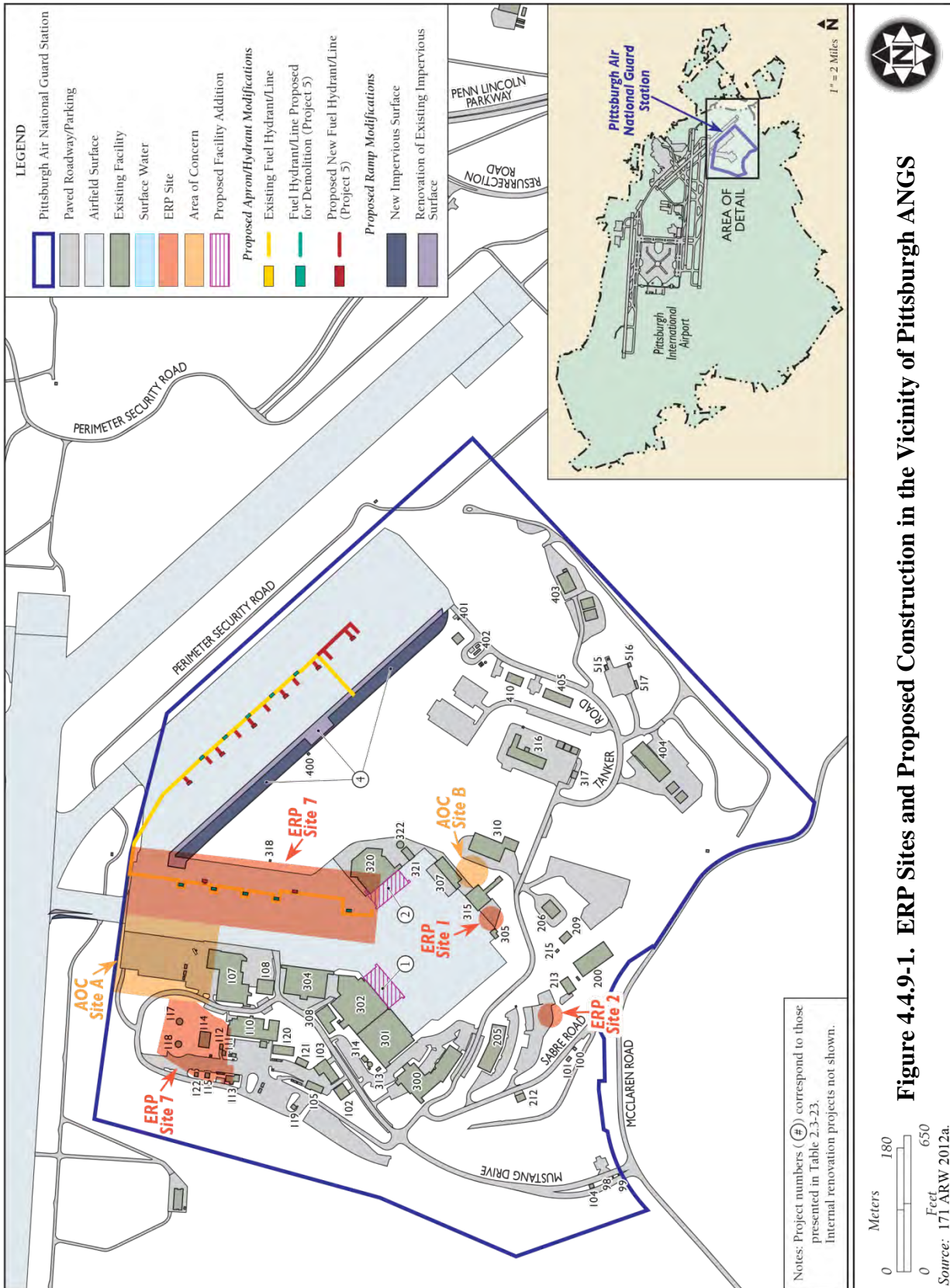
In accordance with AFI32-7020, The Environmental Restoration Program, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the

CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One ERP site, Site #7 overlaps with the proposed addition to Hangar 320 as well as the proposed apron expansion (Figure 4.4.9-1). This site is closed and was a POL storage area and fuel hydrant system for JP-4 fuel. Soil and groundwater sampling performed at this site did not reveal contaminants of concern above PADEP guidelines; therefore, it is not expected to pose a vapor intrusion concern. However, it is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.



**Figure 4.4.9-1. ERP Sites and Proposed Construction in the Vicinity of Pittsburgh ANG Station**

If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 171 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

Alternative #4 would not result in an increased risk of hazardous waste releases or exposure, nor would it affect the criteria listed in Appendix A, Section A.9. Therefore, no significant impacts from hazardous materials and wastes would occur with the implementation of Alternative #4.

#### 4.4.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure from this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites. Impacts relative to hazardous materials and wastes would be negligible.

#### 4.4.10 Socioeconomics

Under Alternative #4, construction activities would be contained entirely within the boundaries of Pittsburgh IAP. Economic activity associated with proposed construction activities at the 171 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a minor change in staffing requirements for the 171 ARW. Currently, the 171 ARW is authorized 1,306 personnel. Under Alternative #4, the KC-46A mission would add an additional 59 military positions (increase in 235 full-time positions and reduction of 176 traditional Guard positions) (see Table 2.3-24). Combined with their approximately 80 family members, this would represent less than 0.01 percent of Allegheny County population. Of the 80 family members, approximately 28 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different areas within Allegheny County. It is anticipated

that there is enough capacity within the schools in this county to absorb this minimal increase in school age children.

A net increase in 59 military personnel positions would amount to an increase of approximately 4.5 percent to the existing 171 ARW personnel. Total payroll associated with the 235 additional full-time personnel would amount to an estimated total annual salary increase of approximately \$12 million for full-time employees. However, a portion of this (approximately \$4 million) would be offset by the loss of 176 part-time guardsmen.

All 171 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 80 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.01 percent of the total housing units in the Allegheny County. However, not all the military personnel who would relocate would own homes, and some personnel may choose to live in other neighboring counties or states.

#### **4.4.10.1 Summary of Impacts**

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

### **4.4.11 Environmental Justice and the Protection of Children**

#### **4.4.11.1 Minority and Low-Income Populations**

As presented in Table 4.4.11-1, of the roughly 12 persons (same as baseline) that would be affected by proposed DNL between 65 dB and 70 dB, none are considered to be minorities, or low-income populations. No additional minorities or low-income populations would be impacted by aircraft DNL greater 65 dB under Alternative #4. Therefore, there would be no impacts to minority or low-income populations in the vicinity of Pittsburgh IAP and there would be no disproportionate impacts to minority or low-income populations.

**Table 4.4.11-1. Population within Alternative #4 Noise Contours,  
Pittsburgh IAP<sup>1</sup>**

<i>Noise Contour</i>	<i>Total Population</i>	<i>Minority Population</i>	<i>Percent Minority</i>	<i>Low-Income Population</i>	<i>Percent Low-Income<sup>2</sup></i>
65-70	12	0	0	0	0
70-75	0	0	0	0	0
75-80	0	0	0	0	0
80-85	0	0	0	0	0
85+	0	0	0	0	0
<b>Total</b>	<b>12</b>	<b>0</b>	<b>0</b>	<b>0</b>	<b>0</b>

*Note:* 1. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low income population numbers are from the 2007-2011 ACS 5-Year Estimates.  
2. The percentage of low-income persons is calculated as a percentage of all persons for whom the USCB determines poverty status, which is generally a lower number than the total population because it excludes institutionalized persons, persons in military group quarters and college dormitories, and unrelated individuals under 15 years old.

*Sources:* USCB 2010f and 2011f.

#### 4.4.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there are no Kindergarten through Grade 12 off-installation schools that are exposed to aircraft DNL between 65 dB and 70 dB. Under Alternative #4 there would be no new Kindergarten through Grade 12 schools exposed to aircraft DNL of 65 dB or above. Therefore, under Alternative #4 there would be no special health or safety risks to children.

#### 4.4.11.3 Summary of Impacts

Given that the acreage within the 65 dB DNL noise contour would be reduced under Alternative #4, there would be no additional residential populations, including no minority or low-income populations, and no additional schools located within the vicinity Pittsburgh IAP exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Pittsburgh IAP. In addition, there would be no special health or safety risks to children.



## **4.5           ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION**

### **4.5.1       Noise**

In this section, noise associated with flying operations and construction activities related to Alternative #5 are considered and compared with current conditions associated with the most current approved and published baseline noise study to assess potential impacts. Details of the noise modeling methodologies used for this section can be found Appendix A, Section A.1.2.

Actual 2012 KC-135 airfield operations were identified in Table 2.3-25. This data was used in determining the proposed KC-46A airfield operations based on most current home-station sorties and airfield operations to provide a more accurate determination of the number of airfield operations for Alternative #5. Under this analysis, the proposed airfield operations are compared to the most current approved and published 2007 FAR Part 150 Noise Compatibility Program for Rickenbacker IAP.

The DNL noise contours for the KC-46A under Alternative #5 were generated using INM. Based KC-135 operations were removed and replaced with KC-46A operations using the B-767-300 and the standard flight profile data provided with INM as substitute data and applying the data to the current based KC-135 flight tracks and operational procedures (INM does not have a standard profile or noise curve data for the KC-46A). Using the standard flight profile data provided for this substitute aircraft in INM provides an accurate analysis of noise contour comparisons that would be expected with the new KC-46A. Flight profiles, flight tracks, and operational procedures currently being used by the KC-135 were used in this INM program.

#### **4.5.1.1     Aircraft Noise**

Under Alternative #5, 12 KC-46As would be based at Rickenbacker ANGS replacing the current 18 KC-135 aircraft. There would be no change in the number or type of other aircraft using the airfield. KC-46A aircrews would use the same flying procedures (e.g., ground tracks, altitude profiles) currently used by KC-135 aircrews. Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield. Tactical training prepares aircrews for operations in forward operating locations in which flying at low-altitudes over land not controlled by friendly forces exposes the aircraft to ground-based threats. This procedure is currently being flown with the KC-135; however, most tactical procedures would be accomplished in the simulator and at the other locations away from Rickenbacker IAP.

Using the current published and approved baseline noise contours from the Rickenbacker IAP FAR Part 150 Noise Compatibility Program Update and INM data, there would be a decrease in the overall number of airfield operations with the proposed KC-46A for comparison (Table 4.5.1-1).

Under Alternative #5, the 121 ARW KC-46A aircraft would fly a total of 8,040 hours, resulting in 2,010 annual sorties of which it is expected that up to 1,286 sorties would be flown at Rickenbacker ANG. Baseline conditions for the KC-135 are represented here as the same number of 121 ARW airfield operations published in the August 2007 Rickenbacker IAP FAR Part 150 study (CRAA 2007). Based on 1,286 annual home-station sorties with an average of 5.33 operations per sortie, there would be 6,857 annual home-station operations, or a reduction of 6,283 airfield operations annually at Rickenbacker IAP. This would decrease the average daily airfield operations from approximately 36 to 25 as shown in Table 4.5.1-1. The 121 ARW KC-46A operations would be approximately 11 percent of all aircraft operations at the airfield under the current approved FAR Part 150 Noise Compatibility Update.

**Table 4.5.1-1. Changes to Rickenbacker IAP Airfield Operations with Proposed KC-46A Based on FAR Part 150 Baseline**

<i>Unit</i>	<i>Total Based KC-135 (Average Daily Airfield Operations)</i>	<i>Total Based KC-46A (Average Daily Airfield Operations)</i>	<i>Change in Airfield Operations Annually for Proposed KC-46A Operations (% Change)</i>
121 ARW	13,140 <sup>1</sup> (35.8)	6,857 (25.3)	-6,283 (-47.8%)

Note: 1. Operations based on currently approved FAR Part 150.

Table 4.5.1-2 provides details on the total airfield operations for Rickenbacker IAP under Alternative #5 using the current FAR Part 150 as the baseline operations. There would be a 9.4 percent decrease in the overall airfield operations from the current baseline operations. There would be approximately 4 percent of KC-46A airfield operations flown during environmental night. The total number of operations flown by all other aircraft at Rickenbacker IAP would not change from previously identified airfield activities. There would be no change to any other aircraft types or aircraft flight tracks and profiles from the baseline condition.

**Table 4.5.1-2. Rickenbacker ANG Aircraft Operations with Proposed KC-46A**

<i>Aircraft</i>	<i>DEPARTURES</i>		<i>ARRIVALS</i>		<i>TOTAL<sup>1</sup></i>		<i>Grand Total<sup>1</sup></i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
KC-46A	3,428	0	3,153	276	6,581	276	6,857
Other Aircraft <sup>3,4</sup>	13,870	13,140	13,505	13,505	27,375	26,645	54,020
<b>Total</b>	<b>17,298</b>	<b>13,140</b>	<b>16,658</b>	<b>13,781</b>	<b>33,956</b>	<b>26,921</b>	<b>60,877</b>

- Notes: 1. Includes Closed Patterns (which count as two airfield operations).  
 2. Night –Between 10 p.m. and 7 a.m. for environmental night.  
 3. Other Based aircraft and Transient Aircraft (multiple type aircraft) including: Boeing 737, 747, and Airbus 300.  
 4. Operations based on currently approved FAR Part 150.

Figure 4.5.1-1 depicts Alternative #5 noise exposure area from aircraft operations after the conversion from the current 18 KC-135 aircraft to 12 KC-46A aircraft, and Figure 4.5.1-2 compares baseline noise contours with Alternative #5 contours. The aircraft operations modeled include all current based and transient aircraft as depicted in the 2007 FAR Part 150 Noise Compatibility Noise Update. Table 4.5.1-3 shows changes to the acreage of land within each noise contour under Alternative #5.

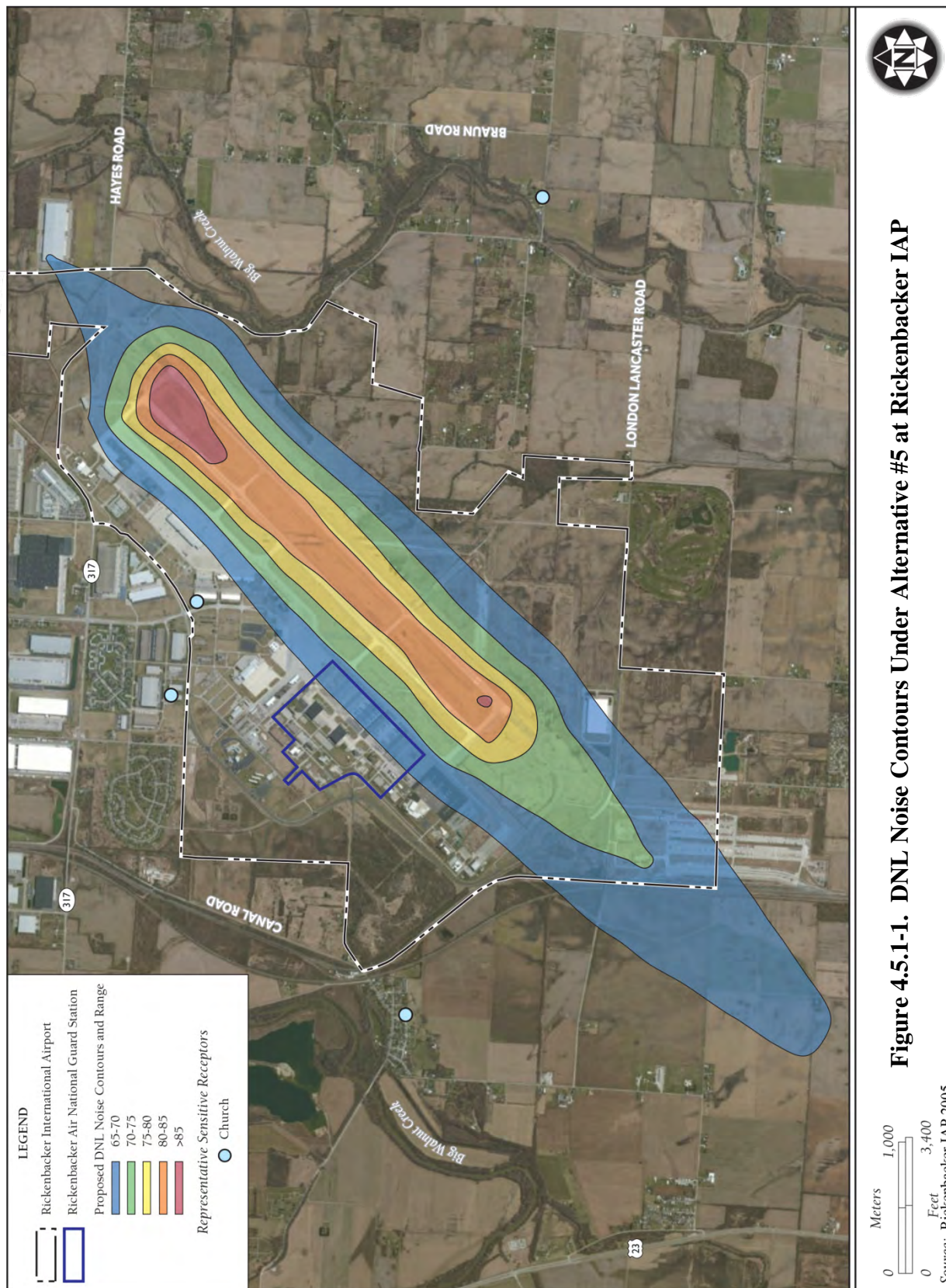
**Table 4.5.1-3. Land Areas within DNL Contours at Rickenbacker IAP Affected by DNL Greater than 65 dB under Baseline and Alternative #5**

Noise Contour (dB DNL)	BASELINE (KC-135) TOTAL (ACRES)			ALTERNATIVE #5 (KC-46A) TOTAL (ACRES)			Change Total (Acres)
	On Airport	Off Airport	Total	On Airport	Off Airport	Total	
65-70	811	417	1,228	799	345	1,144	-84
70-75	478	0	478	495	0	495	17
75-80	156	0	156	276	0	276	120
80-85	265	0	265	288	0	288	23
>85	232	0	232	57	0	57	-175
<b>Total</b>	<b>1,942</b>	<b>417</b>	<b>2,359</b>	<b>1,915</b>	<b>345</b>	<b>2,260</b>	<b>-99</b>

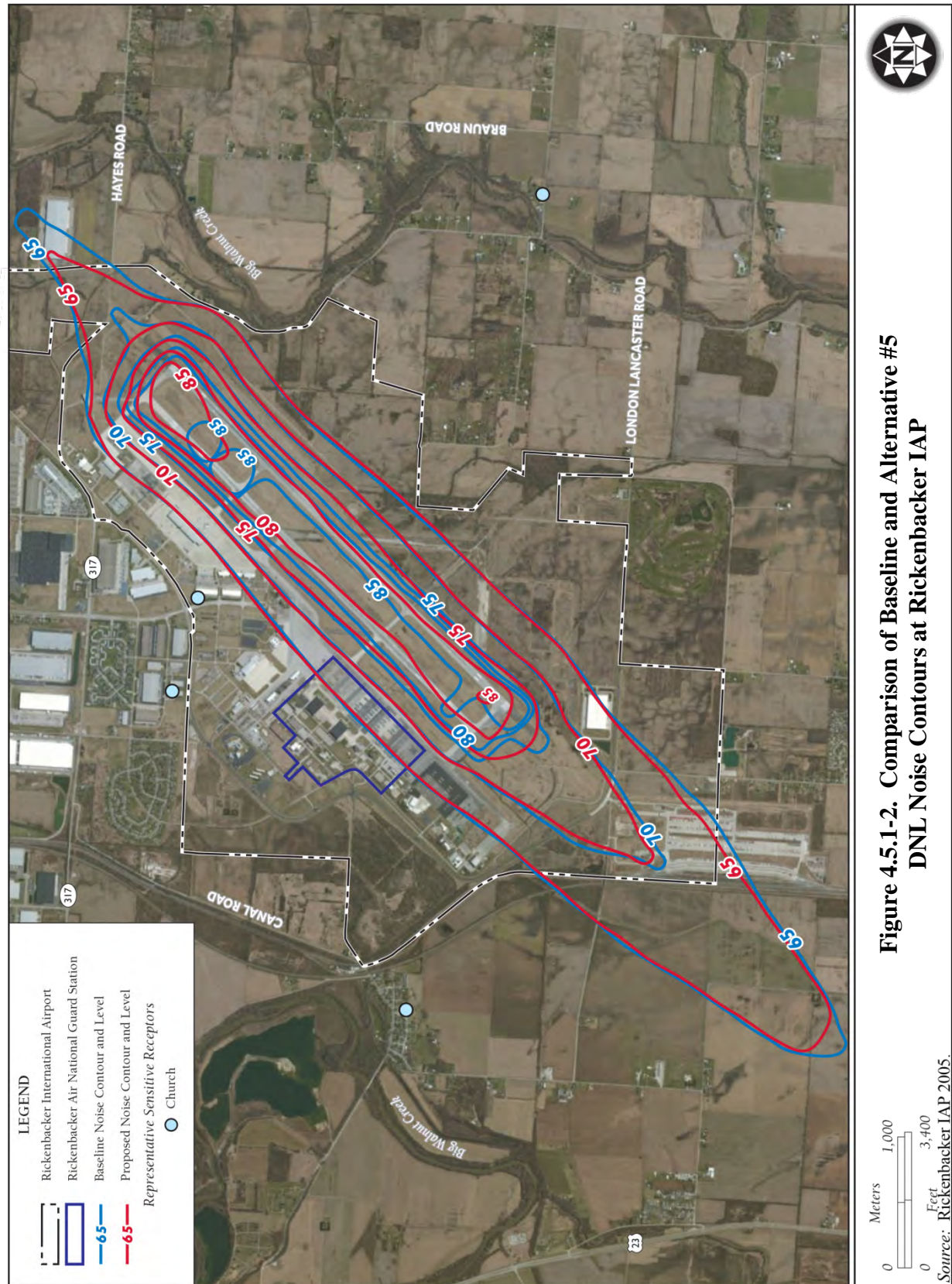
Notes: DNL = Day Night Average Sound Level; dB = decibel

Under Alternative #5, the DNL noise contours would decrease slightly from the DNL baseline contours. The reduction is the result of fewer KC-46A airfield operations and because the KC-46A is generally a quieter aircraft (5 dB quieter on landing and 1 dB louder on take-off) than the KC-135.

Overall, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 99 acres, or 4 percent, and would remain primarily on airport property with approximately 345 of the acres off the airport property under Alternative #5. Information regarding the number of people residing in this area can be found in Section 4.5.11, *Environmental Justice and the Protection of Children*; and information regarding the area of residential use is located in Section 4.5.7, *Land Use*.







### *Percent of the Population Expected to be Highly Annoyed*

The percentage of the population expected to be highly annoyed under Alternative #5 would not be expected to change from baseline conditions because there are no additional residences exposed to levels above 65 dB DNL.

### *Single Event Sound Analysis*

Under Alternative #5, the flying profiles would not change, and the scheduled flying program would not change. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less while take-offs would be 1 dB more than the KC-135. Under Alternative #5, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.).

### *Potential Hearing Loss*

As shown in Table 4.5.1-3, there is no property off the Rickenbacker IAP that falls within the 80+ dB DNL noise contour; therefore, there would be no potential hearing loss risk associated with these areas.

#### 4.5.1.2 Construction Noise

There would be some minor noise from construction equipment associated with construction activities that would occur intermittently during the construction period (beginning FY 2015). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHWA 2006). Aviation-related activities at Rickenbacker IAP dominate the local noise environment for brief times on some days. Equipment used during the facility construction would contribute little to the general background noise levels around the airfield. Therefore, impacts from construction under Alternative #5 would be negligible.

#### 4.5.1.3 Summary of Impacts

The number of 121 ARW airfield operations would decrease by 6,283 (48 percent decrease from the currently published FAR Part 150 Noise Compatibility Program; and a 1 percent increase in actual 2012 airfield operations), and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres. There would be a decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-

controlled property that lie within the 65 dB DNL contour. There would be no potential for hearing loss off the airport and no increase in the percent of the population highly annoyed. Construction noise would be localized and temporary and would not add to the overall noise environment. Impacts from noise would be negligible.

#### **4.5.2 Air Quality**

The air quality analysis estimated the magnitude of emissions that would result from implementation of the proposed KC-46A construction and operational activities at the 121 ARW. The estimation of proposed operational emissions is based on the net change in emissions between existing aircraft operations and projected KC-46A operations.

As discussed in Appendix A.2.3, air quality impacts from the beddown of the KC-46A aircraft at Rickenbacker IAP were reviewed for significance relative to the PSD threshold for new major sources for attainment pollutants, and the General Conformity *de minimis* thresholds for nonattainment pollutants. Because the project region within Franklin County is a nonattainment area for O<sub>3</sub> (marginal) and PM<sub>2.5</sub>, the *de minimis* threshold of 100 tpy for O<sub>3</sub> precursors NO<sub>x</sub> and VOCs, and PM<sub>2.5</sub>, was used as an indicator of the potential significance of the emissions from the KC-46A conversion. For attainment pollutants, the PSD threshold of 250 tpy (100,000 tpy for GHGs) was used as an indicator of the potential significance of the emissions from Alternative #5.

##### **4.5.2.1 Operational Emissions**

Sources associated with operation of the proposed KC-46A beddown at Rickenbacker IAP include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commutes; and (4) AGE. It was assumed that other sources, including nonroad mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (AFCEC 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were



estimated based on the proposed personnel for the existing and proposed scenarios, using emission factors for vehicles from AFCEC 2013.

Table 4.5.2-1 summarizes the annual operational emissions that would result from KC-46A operations at Rickenbacker IAP. Table 4.5.2-1 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at Rickenbacker IAP. As shown in Table 4.5.2-1, the net emissions increases are below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.5.2-1. Comparison of Baseline and Proposed  
Annual Operational Emissions, 121 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR					
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	4.63	68.57	64.35	6.38	0.34	0.34
AGE	0.01	0.02	0.15	0.00	0.01	0.01
Engine Tests	0.11	1.55	0.43	0.07	0.01	0.01
POVs	4.55	67.35	3.55	0.05	0.15	0.07
<b>Total</b>	<b>9.29</b>	<b>137.50</b>	<b>68.48</b>	<b>6.50</b>	<b>0.51</b>	<b>0.42</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	21.73	77.82	123.58	7.78	0.57	0.49
AGE	0.01	0.02	0.15	0.00	0.01	0.01
Engine Tests	0.59	2.03	0.54	0.07	0.01	0.01
POVs	4.09	60.59	2.68	0.05	0.15	0.07
<b>Total</b>	<b>26.43</b>	<b>140.46</b>	<b>126.95</b>	<b>7.90</b>	<b>0.73</b>	<b>0.55</b>
<b>Net Increase</b>	<b>17.13</b>	<b>2.96</b>	<b>58.47</b>	<b>1.40</b>	<b>0.23</b>	<b>0.15</b>
<b>MOB2 Net Emissions Increase Fraction of Existing Emissions</b>	<b>1.84</b>	<b>0.02</b>	<b>0.85</b>	<b>0.22</b>	<b>0.45</b>	<b>0.36</b>
<b>PSD/<i>de minimis</i> Threshold</b>	<b>100</b>	<b>250</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>100</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately owned vehicle; PSD = Prevention of Significant Deterioration

In addition to criteria pollutant emissions, the beddown of the KC-46A aircraft at Rickenbacker IAP would result in emissions of HAPs and GHGs. Operational activities would result in a net increase of HAPs that is below 1 ton per year.

Table 4.5.2-2 summarizes the annual operational GHG emissions that would result from KC-46A operations at Rickenbacker IAP, along with the net increase in comparison with the baseline. As shown in Table 4.5.2-2, emissions are below the PSD thresholds for GHGs.

**Table 4.5.2-2. Comparison of Baseline and Proposed  
Annual Operational GHG Emissions, 121 ARW**

<i>Baseline</i>	ANNUAL GHG EMISSIONS, METRIC TONS/YEAR			
	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-135 Aircraft Operations	17,562	0.49	0.55	17,742
AGE	3,298	0.09	0.11	3,333
Engine Tests	183	0.01	0.01	185
POVs	2,407	0.00	0.00	2,407
<b>Total</b>	<b>23,451</b>	<b>0.58</b>	<b>0.66</b>	<b>23,667</b>
<i>Proposed Action</i>	<i>CO<sub>2</sub></i>	<i>CH<sub>4</sub></i>	<i>N<sub>2</sub>O</i>	<i>CO<sub>2</sub>e</i>
KC-46A Aircraft Operations	21,009	0.53	0.60	21,206
AGE	3,291	0.09	0.11	3,326
Engine Tests	180	0.00	0.01	182
POVs	2,430	0.00	0.00	2,430
<b>Total</b>	<b>26,909</b>	<b>0.63</b>	<b>0.71</b>	<b>27,143</b>
<b>Net Increase</b>	<b>3,458</b>	<b>0.05</b>	<b>0.05</b>	<b>3,476</b>
<b>PSD Threshold</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO<sub>2</sub> = carbon dioxide; CH<sub>4</sub> = methane; N<sub>2</sub>O = nitrous oxide; CO<sub>2</sub>e = carbon dioxide equivalent; AGE = aerospace ground equipment; POV = privately owned vehicle

#### 4.5.2.2 Construction Emissions

The KC-46A beddown at Rickenbacker IAP would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would occur from (1) combustion emissions from heavy equipment and vehicles; and (2) fugitive dust emissions due to operation of equipment on exposed soil. Table 4.5.2-3 presents a summary of the annual construction emissions for the beddown of the KC-46A aircraft at Rickenbacker IAP. As shown in Table 4.5.2-3, emissions would be below the PSD/*de minimis* thresholds for all pollutants.

**Table 4.5.2-3. Annual Construction Emissions Under Alternative #5**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>SO<sub>x</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>	<i>Total CO<sub>2</sub>, Metric tons/year</i>
Project #1 - Addition and Modifications to Hangar 885	0.32	0.51	0.09	0.01	0.40	0.37	170.43
Project #2 - Addition to Hangar 883	1.39	2.20	0.39	0.04	2.17	1.70	736.69
Project #3 - Internal Renovations to Hangar 888	0.30	0.47	0.06	0.01	0.04	0.04	122.59
Project #4 - Modifications to Existing Parking Ramp and Taxiway	9.07	21.55	2.25	1.07	22.37	8.31	5,355.66
Project #5 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.05	0.08	0.01	0.00	0.02	0.01	27.82
<b>Total</b>	<b>11.12</b>	<b>24.82</b>	<b>2.80</b>	<b>1.13</b>	<b>25.00</b>	<b>10.43</b>	<b>6,413.19</b>
<b>PSD/de minimis Threshold</b>	<b>250</b>	<b>100</b>	<b>100</b>	<b>250</b>	<b>250</b>	<b>250</b>	<b>100,000</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide; PSD = Prevention of Significant Deterioration

#### 4.5.2.3 Summary of Impacts

The Rickenbacker ANGS is located in an area of nonattainment for the O<sub>3</sub> and PM<sub>2.5</sub> NAAQS. While there are increases in operational criteria pollutant emissions, they are below the PSD/*de minimis* thresholds for all pollutants and are not significant. Operational GHG emissions are within thresholds in the PSD tailoring rule. Impacts from construction emissions and operational HAP emissions are negligible.

### 4.5.3 Safety

#### 4.5.3.1 Ground Safety

Existing facilities at Rickenbacker IAP for fire response and crash recovery meet KC-46A beddown requirements (Headquarters AMC and NGB 2013b).

Providing new and renovated facilities for the 121 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 121 ARW.

Proposed renovation and infrastructure improvement projects related to Alternative #5 would not impact aircraft take-off or landings or penetrate any RPZs. New construction is not proposed, only existing building renovation; therefore, construction activity would not result in any greater safety risk or obstructions to navigation. Operations would fall within the same general types as

those that have historically occurred at Rickenbacker IAP. For example, the KC-46A would follow established local approach and departure patterns used. Therefore, flight activity and subsequent operations would not require changes to RPZs.

To support the aircraft beddown at Rickenbacker ANG, some facilities would require renovation/modification. However, no construction activities would involve any unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures, including AFI 13-213, *Airfield Driving* (2011), would further minimize the relatively low risk associated with these construction activities.

At present, Rickenbacker ANG has no QD arcs and no plans to store munitions at the installation are proposed.

The proposed construction projects meet all criteria specified in the ANG Handbook 32-1084, *Facility Space Standards*. AT/FP requirements have also been addressed to the extent practicable in all projects. Projects would use AT/FP site design standards for siting of facilities, parking, walkways, and other features. Renovations would bring the facilities into compliance with UFC 4-022-01, *Security Engineering: Entry Control Facilities/Access Control Points* and UFC 4-010-01, *DoD Minimum Antiterrorism Standards for Buildings*, providing additional protection for the personnel based there.

#### 4.5.3.2 Flight Safety

Although the KC-46A is a new aircraft, it is a military derivative of the commercial Boeing 767 aircraft. First flown commercially in 1982, more than 1,000 commercial Boeing 767 aircraft have been produced and it is a proven commercial airliner, freighter, and tanker already in service (Boeing 2012). Mishap statistics for the commercial Boeing 767 show 14 total aircraft losses (similar to a Class A military mishap definition) during its 31 year lifetime (ASN 2013).

Although no facilities are proposed that would affect navigable airspace, Rickenbacker ANG would comply with 14 CFR Part 77, *Objects Affecting Navigable Airspace*, as appropriate, should they be selected to host the KC-46A.

To augment airborne training missions, pilots flying the KC-46A would use simulators extensively. Simulator training includes all facets of flight operations and comprehensive emergency procedures. The sophistication and fidelity of current simulators and related computer programs are commensurate with the advancements made in aircraft technology and are extremely realistic. These factors should minimize risk associated with mishaps due to pilot error.

Under Alternative #5, there would be an increase of approximately 6 percent in 121 ARW annual operations (1 percent in total Rickenbacker IAP airfield operations) compared to existing conditions. This negligible increase in take-offs, landings, proficiency training, and other flights would not result in a measurable change in the safety risk to aircrews and personnel.

The proposed change in airfield flight operations would be expected to increase the opportunity for aircraft mishaps, including BASH incidents; however, the expected rate of mishaps or BASH incidents would not be expected to change from current conditions. In addition, current airfield safety procedures discussed previously would continue to be implemented and additional airfield flight operations would adhere to established safety procedures.

Given the low likelihood for an aircraft accident or BASH mishap to occur in the local airfield area and even lower likelihood for civilians to be impacted, impacts to safety in the vicinity of Rickenbacker IAP as a result of the Proposed Action are expected to be negligible.

The KC-46A will have the capability to jettison fuel for emergency situations. Military policy is to avoid fuel jettisons, unless safety of flight dictates an immediate jettison, and requires senior officer approval before fuel jettison, unless under emergency situations. Records of KC-135 fuel jettison events reveal that such circumstances are rare, occurring in slightly less than two sorties per thousand (Headquarters AMC 2013). Additionally, unlike the KC-135, the KC-46A will have the capability to land fully loaded with fuel so long as adequate runway length and braking capability are available (Headquarters AMC 2013), which could potentially lessen the need to jettison fuel in certain circumstances. Based on information provided by Boeing, landing the KC-46A above maximum landing weight is not prohibited; however, it does drive costly inspection requirements. To land above maximum landing weight routinely could reduce the fatigue life of the airplane (Headquarters AMC 2013).

#### 4.5.3.3 Summary of Impacts

There would be a 6 percent increase in actual 121 ARW airfield operations (1 percent increase in total airfield operations) at Rickenbacker IAP with a commensurate increase in mishap and BASH potential. Construction activities would involve no unusual or extraordinary techniques. During construction and modifications, standard construction safety procedures would be employed, and strict adherence to all applicable standard industrial safety requirements and procedures would further minimize the relatively low risk associated with these construction activities. Impacts to safety would be expected to be negligible.

#### **4.5.4 Soils and Water**

##### **4.5.4.1 Soils**

Under Alternative #5, new construction would consist of five separate projects resulting in 368,330 SF (8.5 acres) of new construction footprint and 14,660 SF (0.3 acre) of new impervious surface (Table 2.3-29). These proposed construction projects for aircraft conversion would meet all criteria specified in ANG Handbook 32-1084, *Facility Space Standards*.

Proposed construction under Alternative #5 would occur primarily on Crosby-Urban land complex (0 to 2 percent slopes), with a small amount of the new construction footprint on Kokomo-Urban land complex. Crosby-Urban land complex is not rated in road or small commercial building development and may require onsite investigation and evaluation for most land use decisions to identify any potential limitations (NRCS 2013). There is no proposed construction on any farmland; therefore, the Farmland Protection Policy Act does not apply to Alternative #5.

Under Alternative #5, there would be approximately 368,330 SF (8.5 acres) of temporary soil disturbance as a result of the proposed construction. To minimize potential impacts to soil and water resources associated with erosion, runoff, sedimentation during construction activity, and standard construction practices as described in the 121 ARW SWPPP (121 ARW 2009) would be implemented during and following the construction period. Such practices could include the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate.

A site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls is an effective way of controlling erosion while soil is exposed and subject to construction activity. An NOI must be filed with the state of Ohio to obtain coverage under the Storm Water Discharge from Small and Large Construction Activities (General Permit No. OH000004) prior to implementation of individual projects. Construction activities subject to this permit include clearing, grading, and disturbances to the ground such as stockpiling or excavation. Implementation of these measures, as necessary and appropriate, would ensure that impacts to earth resources as a result of implementation of Alternative #5 would be minimal.

##### **4.5.4.2 Surface Water**

As a result of implementation of Alternative #5, there would be approximately 14,660 SF (0.3 acre) of new impervious surface from the proposed construction (Figure 4.5.4-1). This could

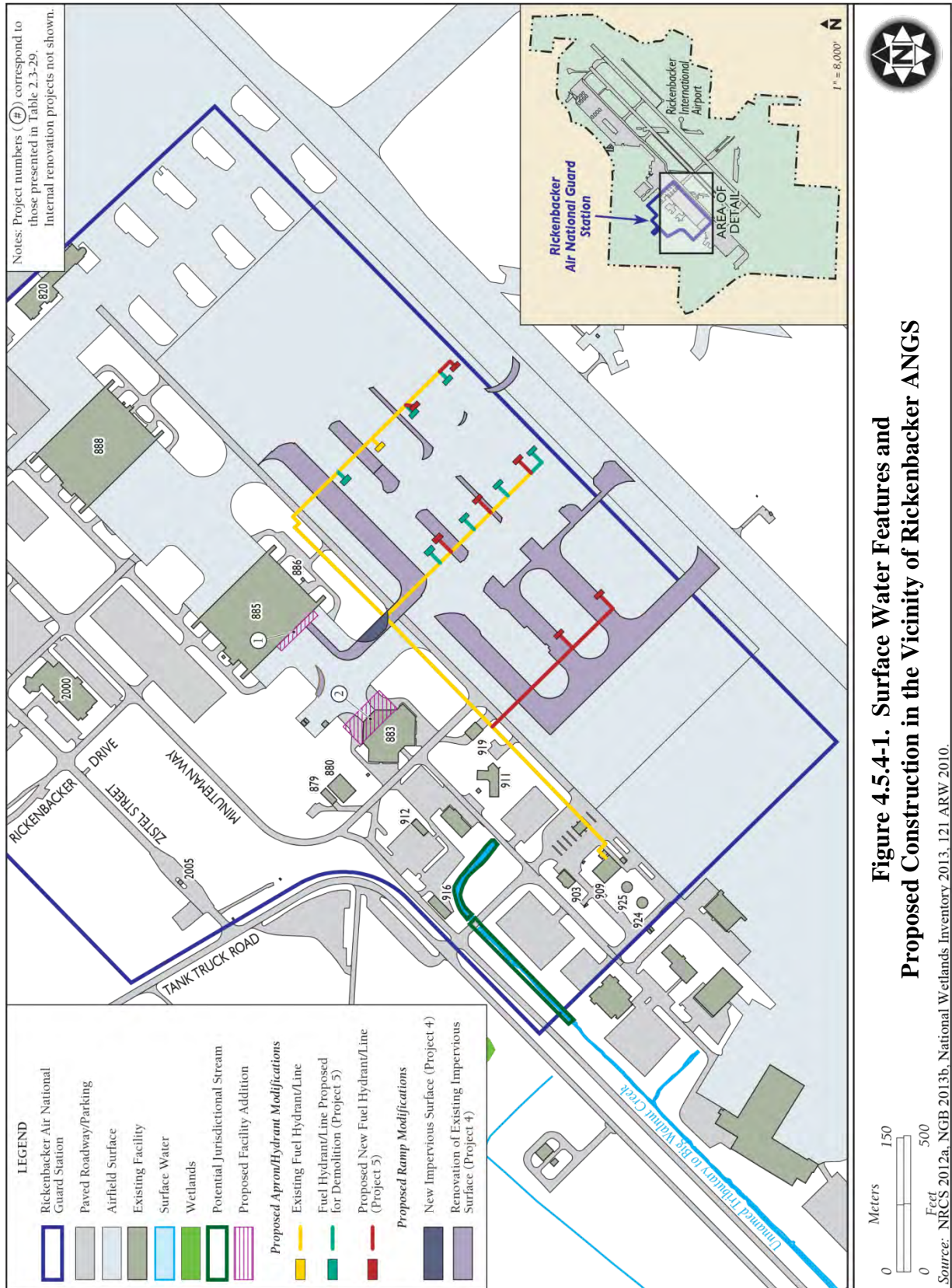
result in localized increases in stormwater runoff volume and intensity, in addition to increases in total suspended particulates to nearby surface waters. However, in accordance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features. The integration of LID design concepts incorporates site design and stormwater management to maintain the site's pre-development runoff rates and volumes to further minimize potential adverse impacts associated with increases in impervious surface area.

Increased runoff and peak discharge volumes as a result of increases to impervious surface can be managed by appropriately designed conveyance structures (such as roadways, channels, and culverts) in accordance with site-specific engineering standards that take into consideration the influence of surface water drainage within, adjacent to, and downstream of the project. In addition, implementing features that manage surface water runoff into the design of the project would avoid or minimize conflicts with city, county, state, or federal regulations and prevent adversely affecting adjacent properties and/or the project area itself. Such measures could include:

- water harvesting and natural open space,
- installation of retention/detention basins for water recharge or for release of runoff at predetermined times to minimize peak discharges,
- the use of porous materials, such as pavers or gravel, for driveway and walkway construction, and
- directing runoff toward permeable areas, such that discharge exiting each site post-construction would be equal to or less than existing conditions.

Implementation of these measures, as necessary and appropriate, would ensure that impacts to surface water as a result of implementation of Alternative #5 would be minimal.





#### 4.5.4.3 Groundwater

As a result of Alternative #5, the increase in the amount of impervious surface (0.3 acre) would also result in a decrease in groundwater recharge. However, as noted above, any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of permit-related temporary and/or permanent drainage management features such as detention/retention basins and standard construction practices as described in the 121 ARW SWPPP (121 ARW 2009). The integration of water harvesting and natural open space into project design would further minimize potential adverse impacts due to increased impervious surface. The use of these features would also increase groundwater recharge through direct percolation offsetting the loss of pervious surface due to future construction. Additionally, the impervious surface area resulting from the proposed activities would not be one continuous, hardened surface. Rather, the impervious surfaces would occupy several smaller areas, which would further minimize localized impacts to groundwater recharge.

#### 4.5.4.4 Floodplains

Proposed construction activities at the installation would not occur within the 100-year floodplain zone. As such, there would be no impacts to floodplains under this alternative.

#### 4.5.4.5 Summary of Impacts

There would be approximately 8.5 acres of temporary soil disturbance and 0.3 acre of new impervious surface as a result of the proposed construction. To minimize potential impacts associated with erosion, runoff, and sedimentation, standard construction practices would be implemented. Proposed construction would not impact prime farmlands; therefore the Farmland Protection Policy Act does not apply to this alternative. Therefore, impacts to soil and water resources would be negligible.

### **4.5.5 Biological Resources**

#### 4.5.5.1 Vegetation

Construction of new facilities associated with Alternative #5 at the 121 ARW installation would occur on currently paved areas or actively managed (i.e., mowed and landscaped) areas, and would result in an increase of 14,660 SF (0.3 acre) of impervious surfaces. No native vegetation would be impacted. Impacts to the vegetation at the installation would be negligible due to the lack of sensitive vegetation in the project area.

#### 4.5.5.2 Wildlife

Under Alternative #5, impacts to wildlife due to construction would be minor. Noise associated with construction may also cause wildlife to temporarily avoid the area, including those that are protected under the MBTA and may cause them to temporarily leave the area. Noise associated with excavating, as well as an increase in general industrial activity and human presence, could evoke reactions in birds. Disturbed nests in the immediate vicinity of construction activity would be susceptible to abandonment and depredation. However, bird and wildlife populations in the vicinity of the airport where project components would occur are accustomed to elevated noise associated with aircraft and general military industrial use. As a result, indirect impacts from construction such as dust and noise are expected to be minimal because the ambient noise levels within the vicinity are high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications.

Under Alternative #5, impacts to wildlife due to noise from proposed operations would be minor. Bird/wildlife aircraft strikes are also an inevitable hazard associated with military aircraft training. Under Alternative #5, the KC-46A would operate in the same airfield environment as the current aircraft. Annual operations for the KC-46A at Rickenbacker IAP would be projected to increase slightly by approximately 6 percent from the 2012 baseline operations (1 percent increase in total airfield operations) found in Table 2.3-27. This negligible increase in levels of operations (e.g., sorties) may result in a negligible increase in opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. Adherence to the existing, BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.5.3, *Safety*). The 121 ARW has developed procedures designed to minimize the occurrence of bird/wildlife aircraft strikes, and has documented detailed procedures to monitor and react to heightened risk of bird/wildlife aircraft strikes. When risk increases, limits are placed on low-altitude flight and some types of training (e.g., multiple approaches, closed pattern work) in the airport environment. Special briefings are provided to pilots whenever the potential exists for increased bird/wildlife aircraft strikes within the airspace.

#### 4.5.5.3 Special Status Species

No federally threatened and endangered species are known to occur on Rickenbacker IAP, and there is only a low potential for them to occur due to lack of habitat. Therefore, there would be no effect on federally listed species. In an email dated April 7, 2014, the USFWS has concurred with this determination (see Appendix B, Section B6). Only one state listed species, the Northern Harrier, is currently known to occur on Rickenbacker IAP, and there is only low potential for others to occur due to lack of habitat. Impacts to the Northern Harrier would be similar to those

impacts described under wildlife. Indirect impacts to the Northern Harrier from construction such as dust and noise are expected to be minimal because the ambient noise levels within the vicinity are relatively high under existing conditions and would be unlikely to substantially increase by the relatively minor and temporary nature of the proposed construction and modifications. In addition, noise from proposed operations would be minor as total airfield operations are projected to increase slightly by approximately 1 percent from baseline. This negligible increase in levels of operations (e.g., sorties) may result in a negligible increase in opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. However, adherence to the existing BASH program would minimize the risk of bird/wildlife aircraft strikes (see Section 4.5.3, *Safety*). Impacts due to construction noise and from proposed operations would be minor.

#### 4.5.5.4 Wetlands

There are no wetland areas that occur within the vicinity of the proposed project footprints. Therefore, no impacts to wetlands would occur as a result of Alternative #5.

#### 4.5.5.5 Summary of Impacts

Construction of new facilities associated with this alternative would occur primarily on currently paved or actively managed areas. Therefore impacts to vegetation would be negligible. There would be no impacts to wetlands. Impacts to wildlife and sensitive species from operational noise would be minor due to the 6 percent increase in 121 ARW airfield operations. This small increase in the airfield operations may also result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. Impacts to state listed species would be minor. No federally listed species or critical habitat is known to occur on Rickenbacker IAP, therefore there would be no impacts to federally listed species.

### 4.5.6 Cultural Resources

Potential direct impacts to cultural resources examined in this analysis include effects to archaeological sites due to ground disturbing activities during construction or modification to buildings. Indirect impacts from an increase in personnel from 1,497 to 1,694 would be negligible as personnel would primarily be confined to the developed areas on the installation, which lack cultural resources.

#### 4.5.6.1 Archaeological Resources

There is one significant archaeological resource located at the 121 ARW at Rickenbacker IAP. This is a multi-component site that is considered eligible to the NRHP. The ground disturbing

activities associated with this alternative would not occur near the archaeological resource and therefore, there would be no impacts to the site. In the unlikely event that archaeological or human remains are identified during construction, all activities in the area of the discovery would cease and the Environmental Manager would contact a qualified archaeologist to evaluate the discovery. Under these conditions, there would be no impact to archaeological resources under Alternative #5.

#### 4.5.6.2 Architectural Resources

Two of the hangars (885 and 888) proposed for additions, modifications, and renovations are eligible to the NRHP. The Ohio SHPO concurred with this eligibility determination (121 ARW 2011d). Hangar 885 would have an addition and renovations inside to house the new aircraft and support facilities. Because these renovations would alter the exterior appearance of a structure that is considered eligible because of its design, the construction would have an adverse effect on a historic property. Modification to Hangar 888 would all be interior; however, they could have an adverse effect to this NRHP-eligible resource. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, further consultation would be conducted to minimize and mitigate adverse effects to these buildings (see Appendix B, Section B3). The third hangar with proposed changes (additions) under this alternative is Hangar 883. This structure has not been inventoried; however, it was constructed in 2000 and is therefore less than 50 years old, is not a Cold War-era resource, and is not exceptionally significant (eligible to the NRHP under Criterion Consideration G). For these reasons, it is not eligible for listing in the NRHP. The SHPO has concurred with this determination and agrees that no adverse effects to this structure would result from the proposed action.

#### 4.5.6.3 Traditional Resources

No traditional resources have been identified at the 121 ARW installation and the highly developed nature of the installation makes it unlikely to contain any such resources. Government-to-government consultation for this action has been conducted with each federally-recognized Tribe associated with the 121 ARW installation in recognition of their status as sovereign nations, to provide information regarding tribal concerns per Section 106 of the NRHP as well as information on traditional resources that may be present on or near the installation. Five responses have been received. The Peoria Tribe of Indians of Oklahoma has sent a response stating that according to their reviews no traditional resources exist on the 121 ARW installation (see Appendix B2 and Stacy 2013). On January 17, 2014, the Shawnee Tribe stated that they had no objection to the Proposed Action via telephone call. On January 22, 2014 the Turtle Mountain Band of Chippewa Indians of North Dakota stated that they had no objection to the Proposed Action via telephone call. On February 4, 2014, the Pokagon Band of Potawatomi

Indians stated that they had no objection to the Proposed Action via telephone call. The Delaware Nation stated via telephone on April 3, 2014 that they had no objection to the Proposed Action. Letters and written correspondence to Tribes were followed up with telephone calls and emails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Correspondence sent to the tribes and follow-up efforts are located in Appendix B2. Additional efforts were made to contact non-responsive tribes without success (see Appendix B2). While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternative at Rickenbacker ANG is now complete.

#### 4.5.6.4 Summary of Impacts

Construction activities at Rickenbacker ANG is would be limited to the developed areas of the installation, primarily in the areas of the aircraft hangars and airfield pavements, where no archaeological resources are known. Additionally, the installation has been surveyed for archaeological resources and no NRHP-eligible resources were discovered. The Ohio SHPO has concurred with the findings of the archaeological survey (Snyder 2007). One significant archaeological resource was recorded prior to the 2007 installation-wide survey. This site is not within the proposed construction areas and would not be impacted by the Proposed Action. Two NRHP-eligible hangars (883 and 885) could be adversely impacted by construction under this alternative. Rickenbacker ANG is and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46A beddown, further consultation would be conducted to minimize and mitigate adverse effects to these buildings. Therefore, with completion of Section 106 consultation, no adverse impacts are anticipated to cultural resources at the 121 ARW installation under Alternative #5.

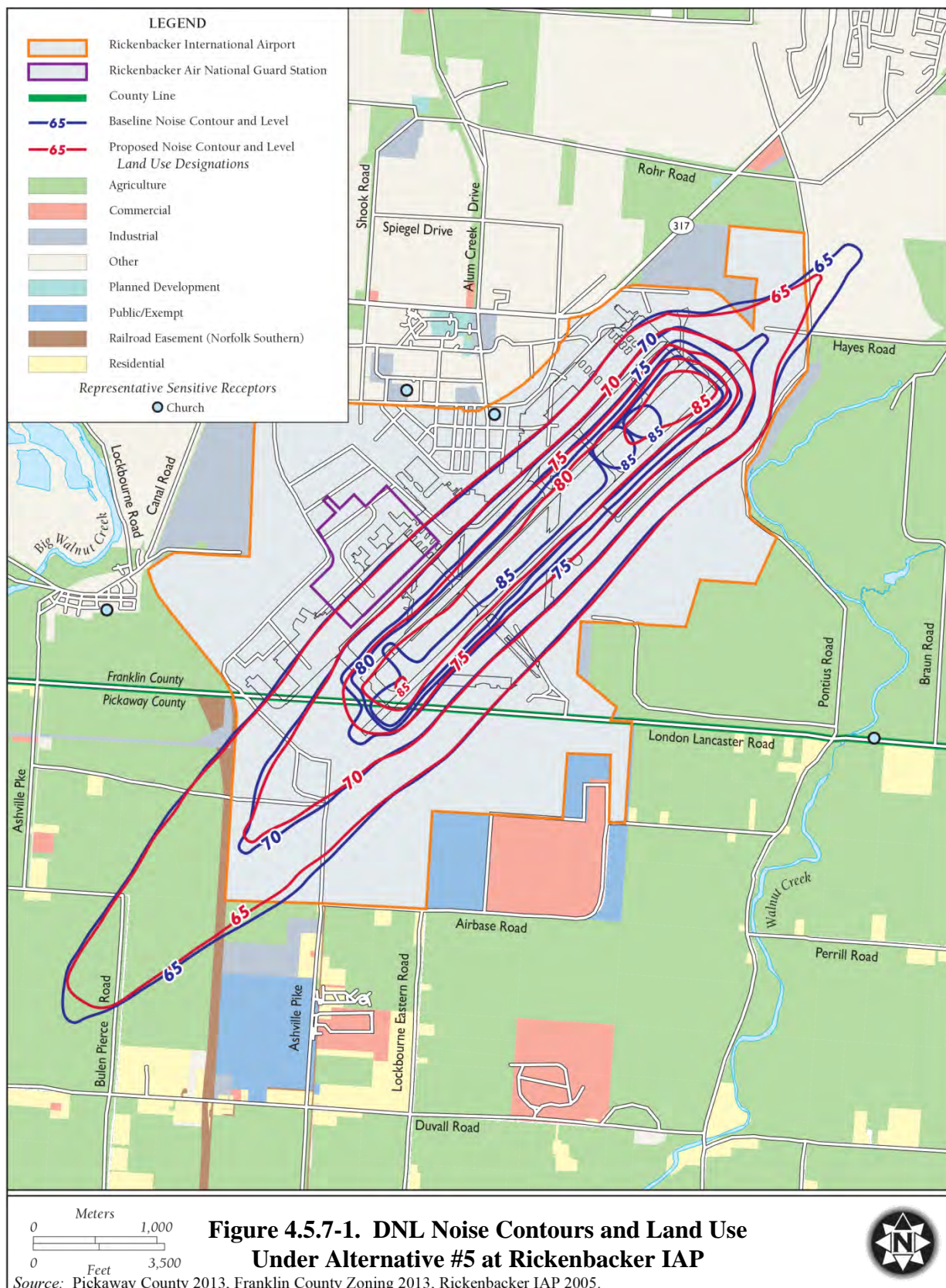
#### 4.5.7 Land Use

The primary source of impacts to land use resulting from Alternative #5 would be from noise. As shown in Table 4.5.7-1 and Figure 4.5.7-1, areas outside of the airport boundaries currently exposed to DNLs of 65 dB to 70 dB would decrease by 72 acres, overall. By zoning districts, Industrial areas affected by DNL of 65 dB to 70 dB would decrease by approximately 2 acres, Public and Utility areas would decrease slightly (less than 1 acre each), Agricultural areas would decrease by approximately 36 acres, and non-designated lands would decrease by approximately 33 acres. No houses, churches, schools or other sensitive noise receptors are located within the 65 dB DNL off-airport noise contour areas. A more detailed discussion of aircraft operations and noise can be found in Section 4.5.1, *Noise*. Therefore, Alternative #5 is compatible with current land use and zoning designations and would result in minor beneficial impacts.

**Table 4.5.7-1. Change in Acres Affected by Noise Levels Above 65 dB DNL Outside the Rickenbacker IAP Boundary**

<i>Land Use</i>	65 dB TO 70 dB DNL		
	<i>Baseline</i>	<i>Proposed</i>	<i>Change</i>
Industrial	5.3	3.1	-2.2
Public Exempt	0.3	0.1	-0.2
Utilities	0.8	0.3	-0.5
Agricultural	342.1	306.1	-36.0
Non-designated	68.5	35.4	-33.1
<b>Total Area</b>	<b>417</b>	<b>345</b>	<b>-72.0</b>





#### 4.5.7.1 Summary of Impacts

The number of airfield operations would decrease by 6,283 (48 percent decrease) from the currently published FAR Part 150 Noise Compatibility Program, and the acreage within the 65 dB DNL (and greater) noise contour would decrease by 99 acres. There would be a decrease of 72 acres within the 65 dB DNL noise contour that are off airport-controlled property, resulting in 345 acres off airport-controlled property that lie within the 65 dB contour. Current land use and zoning designations would not change due to the basing of the KC-46A. This alternative would result in negligible impacts in off-airport areas exposed to noise levels above 65 dB DNL. Airport Hazard Areas would not be affected.

### 4.5.8 Infrastructure and Transportation

#### 4.5.8.1 Potable Water

Water consumption would be expected to increase slightly under Alternative #5 as a result of the increase in personnel; however, an increase in 184 personnel on the installation would not be expected to impact regional water supply. Additionally, the demand for water (e.g., if used to control dust) could also increase during demolition and construction phases. However, this increase would be temporary and intermittent and would not be expected to impact regional water supply.

#### 4.5.8.2 Wastewater

Wastewater generation would be expected to increase slightly as a result of the increase in 184 personnel on the installation. However, there have been no deficiencies identified with the existing system, and it is expected that the existing sanitary sewer system is generally adequate to serve the facilities proposed under this alternative.

#### 4.5.8.3 Stormwater

Under Alternative #5, there would be an up to 368,330 SF (8.5 acres) of temporary soil disturbance as a result of proposed construction. The proposed construction activities could temporarily impact the quality of stormwater runoff (see Section 4.5.4, *Soils and Water*); however, through implementation of appropriate standard construction practices (as described previously), preventative maintenance, and periodic inspections and sampling to detect risk to stormwater, especially during active construction activity, no impacts would be expected to the existing stormwater drainage system as a result of the proposed construction.

In addition, there would be an increase in up to 14,660 SF (0.3 acre) of new impervious surface. The addition of new impervious surfaces would potentially increase stormwater runoff volume and peak discharge rates; however, as discussed in further detail in Section 4.5.4, *Soils and Water*, stormwater runoff increases would be managed such that discharge exiting each site post-construction would be equal to or less than existing conditions in accordance with UFC 3-210-10 and EISA Section 438. Implementation of these measures would ensure that impacts to the stormwater drainage system as a result of implementation of Alternative #5 would be minimal.

#### 4.5.8.4 Electrical and Natural Gas Systems

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel, and the building space and facilities to be constructed would require additional electricity. However, any new facilities and additions associated with Alternative #5 would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. Therefore, average energy consumption would be expected to remain consistent or decrease compared to energy consumption associated with existing facilities.

Construction activity associated with Alternative #5 could result in some temporary interruption of utility services during construction. These impacts would be temporary, occurring briefly during active construction periods. In addition, the demand for energy (primarily electricity) could increase slightly during demolition and construction phases. The energy supply at the installation and in the region is adequate and would not be affected by this temporary increase in demand.

#### 4.5.8.5 Solid Waste Management

The building space and facilities to be constructed would generate construction and demolition debris requiring landfill disposal. Construction activities would result in approximately 368,330 SF of additions and alterations to existing facilities and 14,660 SF of new building construction. Using a multiplier provided by the USEPA to determine solid waste generation, it was estimated that proposed renovations at Rickenbacker IAP would generate 4,342,611 pounds (2,171 tons) of renovation debris requiring landfill disposal and proposed new construction at Rickenbacker IAP would generate 63,624 pounds (32 tons) of construction debris (USEPA 2009). Therefore, the total amount of construction and demolition debris generated at Rickenbacker IAP would be 2,203 tons.

Solid waste generated at Rickenbacker IAP as a result of the proposed construction could result in impacts to solid waste management facilities in the area. The Franklin County Landfill has a remaining life expectancy of 24 years and a permitted throughput of 1,020,659 tons per year (Solid Waste Authority of Central Ohio 2011). The 2,203 tons of proposed construction debris generated at Rickenbacker IAP would represent 0.2 percent of the yearly capacity of the landfill. Impacts to local landfills would not be expected to exceed the permitted throughput or contribute significantly to the remaining capacity.

Off-installation contractors completing construction and demolition projects at the 121 ARW installation would be responsible for disposing of waste generated from these activities. Contractors would be required to comply with federal, state, and local regulations for the collection and disposal of municipal solid waste from the installation. Much of this material can be recycled or reused, or otherwise diverted from landfills. EO 13514, *Federal Leadership in Environmental, Energy, and Economic Performance*, sets a target diversion rate of 50 percent for recycling and waste diversion for DoD facilities by 2015, including construction and demolition waste; compliance with EO 13514 would further minimize the increase in solid waste generation as a result of the proposed construction. All non-recyclable construction and demolition waste would be collected in a dumpster until removal. Construction and demolition waste contaminated with hazardous waste, ACM, LBP, or other undesirable components would be managed in accordance with AFI 32-7042, *Waste Management* (2009).

#### 4.5.8.6 Transportation

Construction equipment would be driven to proposed construction areas and would be kept on-site for the duration of the respective activity. Construction workers would drive daily in their personal vehicles to and from the construction site. In general, construction traffic would result in increases in the use of on-installation roadways during construction activities; however, increases would be temporary and intermittent, occurring only during active construction periods.

The number of authorized personnel on the installation would increase by 184 under Alternative #5 (see Table 2.3-30). The increase in personnel would create a potential 184 additional one-way vehicle trips to and from the installation during morning and evening peak periods for these additional personnel. Assuming that each person makes two trips per day, the implementation of Alternative #5 would add an additional 368 trips onto the existing roadway network after the construction phase is complete. However, regional roads used to access the installation as well as those located on the installation have sufficient capacity to manage this increase in traffic without substantial impacts to circulation. Therefore, impacts to transportation infrastructure would not be significant under Alternative #5.

#### 4.5.8.7 Summary of Impacts

Impacts from this alternative would not be expected since there have been no deficiencies identified with the existing systems, and it is expected that the existing infrastructure is generally adequate to serve the facilities and increased personnel proposed under this alternative. Impacts to infrastructure resulting from construction would be negligible since any interruption of utility services or increase demand on infrastructure would be temporary and infrequent. Impacts to infrastructure would be negligible.

### 4.5.9 Hazardous Materials and Waste

#### 4.5.9.1 Hazardous Materials

A HMMP has been developed for the KC-46A program. Training activities and other functions would be expected to remain similar between the KC-46A and existing KC-135 aircraft. The types of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet. However, unlike the KC-135, the KC-46A aircraft will be free of ODSs. ODSs were typically used as part of the fire suppression systems on aircraft; ODS use and/or storage would no longer be required under the Proposed Actions.

The KC-46A aircraft has been designed with a focus on reduction of hazardous materials such that hazardous materials currently required for maintenance, operations, and materials on or associated with the new aircraft would be less than or equal to the existing aircraft (Boeing 2011). In addition, it is anticipated that the amount of hazardous waste generated for one KC-46A aircraft for maintenance activities would be slightly less than that generated for one KC-135 aircraft since the KC-46A has two engines as opposed to the four engines for the KC-135. Furthermore, the KC-46A is a newer aircraft and is expected to need less maintenance than the older KC-135 aircrafts.

Under Alternative #5, the total number of flying hours for the 121 ARW would increase from 7,215 to 8,040 (an 11 percent increase); therefore, the throughput of petroleum substances (e.g., fuels, oils) used during operations would be expected to increase commensurately from what is currently used to maintain the KC-135 fleet (see Appendix A, Section A.9, for more details). Additionally, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities, because various fuels (e.g., diesel, gasoline) would be required to run earth moving equipment and power tools and to provide electricity and lighting as conditions warrant. Procedures for hazardous material management established for the 121

ARW installation would continue to be followed in future operations associated with Alternative #5 and as required during all construction and renovation activities.

#### *Toxic Substances*

Under Alternative #5, additions to Hangars 885 and 883 are proposed, and internal renovations to Hangar 888 are proposed. Lead abatement was conducted in 2004 at Buildings 885 and 888. According to the 1995 asbestos report, Hangars 885 and 883 were found to contain no ACM. Building 883 was built in the year 2000 and therefore it is assumed that it does not contain any LBP or ACM. Any structures proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. All ACM would be properly removed and disposed of prior to or during demolition in accordance with 40 CFR 61.40 through 157. All LBP would be managed and disposed of in accordance with TSCA, OSHA regulations, Ohio requirements (regarding site work practices for buildings with LBP), and established ANG procedures. Materials, especially discarded oil products, would be screened for PCB contamination prior to disposal.

#### 4.5.9.2 Hazardous Waste Management

The type of hazardous waste streams generated by KC-46A operations would be expected to remain similar to those being generated by the existing KC-135 aircraft with the exception of ODSs, which would not be required with the KC-46A. Additionally, the two aircraft require the same types of hazardous materials for their maintenance and operations (e.g., fuels, oils). Under Alternative #5, the total number of flying hours would increase approximately 11 percent; therefore, hazardous waste streams would be expected to increase commensurately (see Appendix A, Section A.9, for more details). Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.

#### 4.5.9.3 Environmental Restoration Program

In accordance with AFI 32-7020, *The Environmental Restoration Program*, construction, modifications and/or additions to existing buildings can occur on or in proximity to existing ERP sites. Accordingly, the appropriate organizations (e.g., installation planners, ERP managers, design engineers) must consider a compatible land use based on current site conditions and the selected or projected remedial action alternatives. Construction should be sited and designed to minimize life-cycle costs to include those associated with impacts from existing contaminated sites. If the potential for uncharacterized ERP sites exist, the installation is responsible for

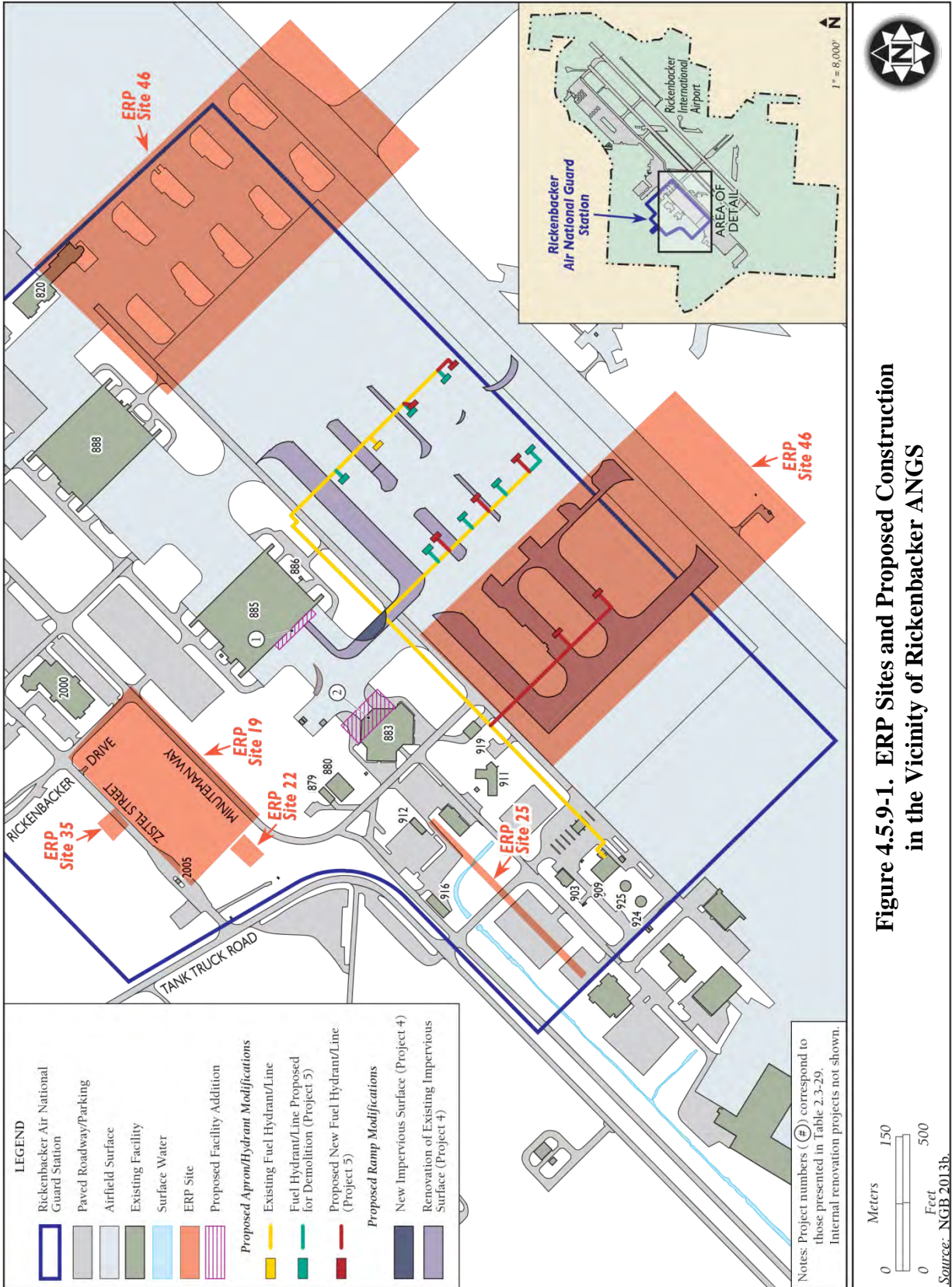
identifying existing contamination at the proposed construction sites to avoid unknowingly locating construction projects in areas with contamination. The installation is responsible for performing necessary environmental baseline surveys, accomplishing environmental impact analysis process requirements, and for otherwise informing itself about existing site conditions and their associated cost impacts in preparation for a construction project. When warranted by the site history, environmental restoration funds may be used to accomplish RCRA facility assessments, or preliminary assessments and site inspections undertaken in accordance with the CERCLA process, or similar site investigations in accordance with applicable state laws for suspected releases. To the extent that a construction project generates actions to address contamination, or a need to change the timing of ERP-generated actions to address contamination, the costs of such actions are not Environmental Restoration Account-eligible and shall be funded as part of the construction project. This includes the handling, mitigation, and disposal or other disposition of contamination discovered before or during the construction activity.

The removal and disposal of contamination unexpectedly encountered within the construction project footprint during the execution of a construction project will be undertaken as part of the construction project using construction project funds which may include other MILCON funds reprogrammed to a MILCON construction project. Construction contractor costs (such as direct delay costs and unabsorbed or extended overhead) incidental to discovery and removal of the contamination will be construction project funded to the extent that the government is responsible and liable for such costs.

Vapor intrusion should be evaluated when volatile chemicals are present in soil, soil gas, or groundwater that underlies existing structures or has the potential to underlie future buildings and there may be a complete human exposure pathway. Due to their physical properties, volatile chemicals can migrate through unsaturated soil and into the indoor air of buildings located near zones of subsurface contamination.

One ERP site, Site #46, overlaps with the proposed fuel line under Alternative #5 (Figure 4.5.9-1). This site, which is closed, was investigated as part of a jet fuel pipeline investigation. Petroleum contamination levels for this site were found to be below Bureau of Underground Storage Tank Regulation limits; therefore, it is not expected to pose a vapor intrusion concern. However, it is recommended that a vapor intrusion analysis/testing is completed prior to construction to investigate any potential concern. If testing indicates a vapor intrusion concern, the installation would implement practices in accordance with site-specific vapor mitigation design considerations.





**Figure 4.5.9-1. ERP Sites and Proposed Construction in the Vicinity of Rickenbacker ANG**

If contaminated media (e.g., soil, vapor, groundwater) are encountered during the course of site preparation (e.g., clearing, grading) or site development (e.g., excavation for installation of building footers) for proposed construction activities, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met, and to arrange for agency consultation as necessary if existing ERP sites are affected. Also, prior to construction activities, the construction contractors would be notified of the nature and extent of known contamination so that they can inform their employees in advance of on-site activities and take appropriate precautions to protect health and safety, and to prevent the spread of contamination. The construction contractors would be responsible for ensuring their workers follow appropriate health and safety requirements.

#### 4.5.9.4 Summary of Impacts

There would not be an increased risk of hazardous waste releases or exposure under this alternative. Any LBP or ACM that may be found in buildings that are scheduled for construction activities would be managed per applicable USAF regulations. There would be no expected impact from ERP sites. However, if contaminated media are encountered during the course of site preparation or site development, work would cease until 121 ARW Program Managers establish an appropriate course of action for the construction project to ensure that federal and state agency notification requirements are met. Impacts relative to hazardous materials and wastes would be negligible.

#### 4.5.10 Socioeconomics

Under Alternative #5, construction activities would be contained entirely within the boundaries of Rickenbacker IAP. Economic activity associated with proposed construction activities at the 121 ARW installation, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased would be negligible on a regional scale.

The proposed aircraft beddown and related activities would result in a change in staffing requirements for the 121 ARW. Currently, the 121 ARW is authorized 1,497 personnel. Under Alternative #5, the KC-46A mission would add an additional 197 military positions (increase in 212 full-time positions and reduction of 15 traditional Guard positions) (see Table 2.3-30). Combined with their approximately 268 family members, this would represent less than 0.04 percent of Franklin County population and 0.8 percent of Pickaway County population. Of the 268 family members, approximately 112 would be anticipated to be of school age. The students entering the local schools would be expected to be enrolled in various grades and live in different

areas within Pickaway and Franklin counties. It is anticipated that there is enough capacity within the schools in these counties to absorb this minimal increase in school age children.

A net increase in 197 military personnel positions would amount to an increase of approximately 13.2 percent to the existing 121 ARW personnel. Total payroll associated with the 212 proposed full-time personnel would amount to an estimated total annual salary increase of approximately \$16.5 million.

All 121 ARW personnel live off-installation as there is no on-installation housing. A conservative scenario would result in 197 homes purchased at the same time as personnel relocate to the area. This would represent less than 0.04 percent of the total housing units in the Franklin County and less than 0.9 percent of Pickaway County. However, not all the military personnel who would relocate would own homes and personnel would most likely be distributed between the two counties.

#### 4.5.10.1 Summary of Impacts

Impacts to socioeconomics resulting from construction would be beneficial and negligible resulting from construction payrolls and materials purchased. In addition, impacts from proposed operations would be beneficial and minor due to the proposed increase in personnel.

### 4.5.11 Environmental Justice and the Protection of Children

#### 4.5.11.1 Minority and Low-Income Populations

Under Alternative #5, there would be no residential populations, including no minority or low-income populations, located within the vicinity of Rickenbacker IAP exposed to aircraft DNL of 65 dB or above. Therefore, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Rickenbacker IAP.

#### 4.5.11.2 Protection of Children

There are no facilities on the installation where children may be encountered on a regular basis. Currently there no schools that are exposed to DNL of 65 dB or above. Under Alternative #5 there would be no schools exposed to DNL of 65 dB or above. Therefore, under Alternative #5 there would be no special health or safety risks to children.

#### 4.5.11.3 Summary of Impacts

Given that the acreage within the 65 dB DNL noise contour would be reduced, there would be no residential populations, including no minority or low-income populations, and no additional

schools located within the vicinity Rickenbacker IAP exposed to DNL of 65 dB or above; thus, there would be no disproportionate impacts to minority or low-income populations in the vicinity of Rickenbacker IAP. In addition, there would be no special health or safety risks to children.

## **4.6 NO ACTION ALTERNATIVE**

The CEQ regulation 40 CFR § 1502.14(d) specifically requires analysis of the “No Action” alternative in all NEPA documents. Under the No Action Alternative, the proposed aircraft beddown would not occur, and the NGB would not implement the components described under any of the five Action Alternatives analyzed in the previous sections. There would be no change in based aircraft, use of the airfield or Special Use Airspace (SUA), or personnel assigned to the KC-135 aircraft squadrons and the proposed construction would not be required. Under the No Action Alternative, the NGB would continue to conduct their current mission using the existing KC-135 aircraft with multiple configurations and crews that are not trained to accomplish every mission. This lack of standardized equipment and training throughout the fleet would continue to negatively impact the ability for aircrews to support, on a large scale, multi-role missions or exploit new tactics and procedures. The continued use of the KC-135 aircraft would not meet the identified needs of the NGB or the USAF; however, this alternative is carried forward for analysis in this EIS per CEQ regulations. Impacts at each of the alternative installations as a result of the No Action Alternative are described below.

Under the No Action Alternative there would be no change in based aircraft authorized at any of the alternative installations; use of the respective airfield; construction, or assigned personnel.

- The 190 ARW would continue to fly the air refueling mission with a PAA of 12 KC-135 aircraft and 1,242 personnel.
- The 108 WG would continue to fly the air refueling mission with a PAA of 8 KC-135 aircraft and 1 BAI and 1,329 personnel.
- The 157 ARW would continue to fly the air refueling mission with a PAA of 8 KC-135 aircraft and 1 BAI and 1,382 personnel.
- The 171 ARW would continue to fly the air refueling mission with a PAA of 16 KC-135 aircraft and 1,306 personnel.
- The 121 ARW would continue to fly the air refueling mission with a PAA of 18 KC-135 aircraft and 1,497 personnel, until the 2013 NDAA is fully implemented. At that time, the 121 ARW will have a reduction of 6 KC-135 aircraft, resulting in a PAA of 12 KC-135. There would be a commensurate reduction in personnel assigned to the 121 ARW as a result of implementation of the NDAA (see Section 5.5).

### **4.6.1 Noise**

Noise at each alternative airfield would remain as described in the baseline Noise section for each alternative location (Sections 3.1.1, 3.2.1, 3.3.1, 3.4.1, and 3.5.1). Each of the five

installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. The noise environment at each of the five alternative airfields would continue to be managed through their existing AICUZ or FAR Part 150 airfield compatibility programs. Under each alternative described in the Noise sections in Chapter 4, there were varying changes in the extent of the 65 dB DNL noise contours; some of the alternatives had imperceptible positive changes (Forbes ANGS, Pittsburgh ANGS, Rickenbacker ANGS), and some had larger adverse changes (JB MDL, Pease ANGS). There would be no additional Noise impacts at any of the alternative installations under the No Action Alternative.

#### **4.6.2 Air Quality**

Air Quality at each alternative airfield would remain as described in the baseline Air Quality section for each alternative location (Sections 3.1.2, 3.2.2, 3.3.3, 3.4.2, and 3.5.2) under the No Action Alternative. Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Emissions at each of the alternative installations would continue to be in compliance with their respective SIPs. There would be no additional impacts to Air Quality at each alternative installation under the No Action Alternative.

#### **4.6.3 Safety**

Both ground and flight safety at each alternative airfield would remain as described in the baseline Safety section for each alternative location (Sections 3.1.3, 3.2.3, 3.3.3, 3.4.3, and 3.5.3). Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Under each alternative described in Chapter 4, there was a range in the increase of annual airfield operations, with Rickenbacker ANGS increasing by 412 annual operations up to JB MDL, which would increase by 9,268 annual operations. Under the No Action Alternative, this increase in annual airfield operations would not occur at any of the alternative installations. All aspects of both ground and flight safety would be expected to remain as described in Chapter 3. There would be no additional impacts to Safety under the No Action Alternative.

#### **4.6.4 Soils and Water**

Both Soils and Water Resources at each alternative airfield would remain as described in the baseline Soils and Water section for each alternative location (Sections 3.1.4, 3.2.4, 3.3.4, 3.4.4, and 3.5.4). Under the alternatives, surface disturbance at the alternative installations ranged

from 3.0 to 8.5 acres (Pease ANGTS and Rickenbacker ANGTS, respectively); and new impervious surface ranged from 0 to 2.4 acres (Pease ANGTS and JB MDL, respectively). Under the No Action Alternative, none of this proposed construction would occur at any of the alternative installations, although other non-related construction activities would occur to provide the necessary facilities for the on-going mission. There would be no additional impacts to Soils and Water Resources as a result of the No Action Alternative.

#### **4.6.5 Biological Resources**

Biological Resources would remain as described in the baseline Biological Resources section for each alternative location (Sections 3.1.5, 3.2.5, 3.3.5, 3.4.5, and 3.5.5). Under the alternatives, new impervious surface ranged from 0 to 2.4 acres (Pease ANGTS and JB MDL, respectively); and there was a proposed increase in annual airfield operations, with Rickenbacker ANGTS increasing by 412 annual operations up to JB MDL, which would increase by 9,268 annual operations. Under the No Action Alternative, there would be no increase in annual airfield operations at any of the installations, and none of this proposed construction would occur at any of the alternative installations, although other non-related construction activities would occur to provide the necessary facilities for the on-going mission. There would be no additional impacts to Biological Resources as a result of the No Action Alternative.

#### **4.6.6 Cultural Resources**

Under the No Action Alternative, Cultural Resources at each alternative installation would remain as described in the baseline Cultural Resources section for each alternative location (Sections 3.1.6, 3.2.6, 3.3.6, 3.4.6, and 3.5.6). None of the proposed facility construction/renovations would occur at any of the installations, and thus, there would be no potential impacts to facilities that are eligible for listing on the NRHP. There would be no surface disturbance from construction activities, and thus no potential to impact unknown archaeological resources. There would be no additional impacts to Cultural Resources as a result of the No Action Alternative.

#### **4.6.7 Land Use**

Land Use at each alternative airfield would remain as described in the baseline Land Use section for each alternative location (Sections 3.1.7, 3.2.7, 3.3.7, 3.4.7, and 3.5.7). Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Under each alternative described in the Land Use sections in Chapter 4, there were varying changes in the areal extent of the 65 dB DNL noise contours; some of the alternatives had imperceptible positive changes (Forbes ANGTS, Pittsburgh ANGTS, Rickenbacker ANGTS), and



some had larger adverse changes (JB MDL, Pease ANGS), but land use within the 65 dB DNL and greater noise contours was generally considered to be compatible at all locations. There would be no additional impacts to Land Use under the No Action Alternative at any of the alternative locations.

#### **4.6.8 Infrastructure and Transportation**

Under the No Action Alternative, Infrastructure and Transportation at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.8, 3.2.8, 3.3.8, 3.4.8, and 3.5.8). Under the various action alternatives, there would be a range of increases in additional based personnel between 23 and 255 (Pittsburgh ANGS and JB MDL, respectively). Under the No Action Alternative, there would be no change to the based personnel at any of the alternative locations. There would be no increase in use of various utilities or roadway systems under this alternative. There would be no additional impacts to Infrastructure and Transportation under the No Action Alternative.

#### **4.6.9 Hazardous Materials and Wastes**

Under the No Action Alternative, Hazardous Materials and Wastes at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.9, 3.2.9, 3.3.9, 3.4.9 and 3.5.9). Each of the five installations would retain the KC-135 aircraft and would continue to fly the aircraft in the same manner and with approximately the same number of airfield operations as described in Chapter 3. Under the No Action Alternative, the throughput and management of hazardous materials and wastes would not change from baseline conditions. The benefit of eliminating ODS with the KC-46A would not be realized. There would be no additional impacts to Hazardous Materials and Wastes under the No Action Alternative.

#### **4.6.10 Socioeconomics**

Under the No Action alternative, Socioeconomics at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.10, 3.2.10, 3.3.10, 3.4.10, and 3.5.10). Under the various action alternatives, there would be a range of increases in additional stationed personnel between 23 and 255 (Pittsburgh ANGS and JB MDL, respectively). Under the No Action Alternative, there would be no change to the based personnel at any of the alternatives. Further, under the No Action Alternative, none of the proposed construction activities would occur, and thus the minor economic benefit of additional based personnel and construction activity would not occur at any of the alternative installations. There would be no additional impacts to Socioeconomics under the No Action Alternative.

#### **4.6.11 Environmental Justice and the Protection of Children**

Under the No Action Alternative, Environmental Justice and the Protection of Children at each alternative installation would remain as described in the baseline section for each alternative location (Sections 3.1.11, 3.2.11, 3.3.11, 3.4.11, and 3.5.11). There were no disproportionate impacts to low-income, minority, or children identified under any of the action alternatives. There would be no additional impacts as a result of the No Action Alternative.

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## CHAPTER 5 CUMULATIVE EFFECTS AND IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.1 ALTERNATIVE #1 -- FORBES AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

#### 5.1.1 Past, Present, and Reasonably Foreseeable Actions

Forbes Field Airport is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #1 are discussed in this section. The ROI for cumulative impacts is generally limited to Forbes Field Airport, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.1.1-1.

**Table 5.1.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Forbes ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>190 ARW Projects</b>		
KC-46A MOB 1 Basing would add 977 airfield operations per year to Forbes Field Airport	N/A	FY 2015
Forbes Field Airport Runway 03-21: Mill and overlay existing concrete with 4 inches of asphalt. Add medium intensive lighting.	N/A	FY 2013 – FY 2014
Building 770: Consolidate vehicle maintenance/AGE	2,000	FY 2014
Building 665: Repair roof	N/A	FY 2014
Secondary Entry Control: Add new control point at main entry	80,000	FY 2015
Parking ramp: replace parking ramp at the full depth	850,000	FY 2016
Building 550 Repair roof, add 78 photovoltaic panels	N/A	FY 2017
Building 200: Repair roof, add photovoltaic panels	80,000	FY 2018
Repair Building 668	N/A	FY 2018

Notes: SF = square feet; 190 ARW = 190<sup>th</sup> Air Refueling Wing; MOB 1 = Main Operating Base 1; FY = Fiscal Year; AGE = aerospace ground equipment

### **5.1.2 Cumulative Impacts**

#### **5.1.2.1 Noise**

Under Alternative #1, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 41 acres. There are no residential areas that underlie the noise contours under this alternative. While there are other projects listed in Table 5.1.1-1 that have the ability to add noise to the environment at Forbes Field Airport, most of these, with the exception of the potential MOB 1 KC-46A use of the airfield, are short-term construction projects that would occur in what is otherwise an industrial setting. Noise associated with the additional 977 MOB 1 annual operations would not be expected to change the noise contours to the extent that additional sensitive receptors would be impacted, or that would result in land use incompatibilities. Noise from implementation of these actions would be short term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at Forbes Field Airport would be minimal.

#### **5.1.2.2 Air Quality**

The net annual emissions increases from the proposed KC-46A beddown as well as the other projects described in Table 5.1.1-1 at Forbes Field Airport (including both construction and airfield operations) would be below the CAA PSD major source thresholds as set forth in the CAA for all pollutants. Implementation of the proposed KC-46A beddown at Forbes Field Airport would contribute to less than adverse (or less than significant) cumulative impacts to air quality.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Forbes ANG's beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

#### 5.1.2.3 Safety

Providing new and renovated facilities for the 190 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 190 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. The fire and crash response capability currently provided by the 190 ARW at Forbes Field Airport is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #1 or those activities described in Table 5.1.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.1.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.1.2.4 Soils and Water

##### *Soils*

In addition to the 258,149 SF (5.9 acres) of surface disturbance that would result from the implementation of Alternative #1, additional surface area would also be disturbed in the vicinity as a result of the projects described in Table 5.1.1-1 over the next 5 years.

The Clean Water Act (CWA) considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.1.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Provided that the projects in Table 5.1.1-1 are all within federal lands, each project would be subject to Farmland Protection Policy Act compliance. Should any of these projects have the potential to convert farmland to non-farm use, a land evaluation and site assessment would be conducted and alternative sites considered should potential adverse impacts to farmland exceed the recommended allowable level.

#### *Water*

There would be no increase in impervious surfaces as a result of implementation of Alternative #1. It is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to surface water and groundwater would be expected to be minor.

#### 5.1.2.5 Biological Resources

DNL noise contours from operations would be expected to decrease by 41 acres from baseline with the conversion to the KC-46A aircraft. Noise levels from construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the KC-46A at Forbes Field Airport would be projected to increase by approximately 39 percent from baseline operations (17 percent increase in total airfield operations). An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No special status species are currently known to reside on Forbes Field Airport and there is only a low potential for them to occur within the vicinity due to the lack of habitat. There would be no construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.1.1-1. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 190 ARW installation and at Forbes Field Airport would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. Therefore, cumulative impacts to biological resources would be minor.

#### 5.1.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during



proposed construction activities associated with Alternative #1 or any of the projects listed in Table 5.1.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. Under Alternative #1, only one of the buildings proposed for modification (Building 679) is eligible for listing in the NRHP. However, extensive renovations have occurred to this building that were mitigated through a Memorandum of Agreement signed in 2009. The current interior modifications would not affect this previous agreement. Additionally, the Kansas SHPO has concurred that there would be no historic properties affected with implementation of Alternative #1 (Zollner 2013). Therefore, there would be no adverse effect to a historic property. No traditional cultural resources have been identified on the installation. None of the facilities listed for renovation and/or modification listed in Table 5.1.1-1 are eligible for listing in the NRHP. Therefore, no cumulative impacts to cultural resources are anticipated.

#### 5.1.2.7 Land Use

Under Alternative #1, acreage off airport property contained within the 65 dB DNL and greater noise contours would decrease by approximately 41 acres resulting in beneficial impacts. In general, land uses surrounding Forbes Field Airport would not be adversely affected by the activities described under Alternative #1 in concert with those described in Table 5.1.1-1. The location and function of proposed structures within the Forbes ANG's are compatible with the surrounding area. Although future development at Forbes Field Airport and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project-specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment airfield safety zones. If the rehabilitation of the runway in 2014 is approved, all based aircraft would need to be relocated to a different airfield during construction. Additionally, if the USAF MOB 1 bases the KC 46 at McConnell AFB, Forbes Field Airport would be used as an auxiliary field, adding an additional 977 operations per year. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.1.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #1. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.1.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily

affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.1.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet, with the exception of ODSs. Under Alternative #1, the total number of flying hours for the 190 ARW would increase approximately 65 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.1.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.1.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.1.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.1.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. Additionally, there would be a permanent increase in 194 military positions. However, short-term cumulative beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #1 and those projects listed in Table 5.1.1-1 would be negligible on a regional scale.

5.1.2.11 Environmental Justice and the Protection of Children

Under Alternative #1, in concert with those projects listed in Table 5.1.1-1, there would be no residential populations, including no minority or low-income populations, located within the projected 65 dB DNL noise contour in the vicinity of Forbes Field Airport. There are no other projects listed in Table 5.1.1-1 that would be expected to impact environmental justice communities. Therefore, there would be no cumulative impacts to the health or safety of children.

## 5.2 ALTERNATIVE #2 -- JOINT BASE MCGUIRE-DIX-LAKEHURST CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.2.1 Past, Present, and Reasonably Foreseeable Actions

McGuire Field is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #2 are discussed in this section. The ROI for cumulative impacts is generally limited to McGuire Field, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.2.1-1.

**Table 5.2.1-1. Past, Present, and Reasonably Foreseeable Actions in the ROI for JB MDL**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>108 WG Projects</b>		
Demolition of Building 3326	940	FY 2015 – FY 2017
Addition to Building 3325	3,000	FY 2015 – FY 2017
<b>JB MDL Projects</b>		
Various airfield repairs - Repair airfield shoulders, Assault Landing Zone Runway shoulders, main ramp taxiway, repair concrete apron and Alpha ramp, replace Taxiway A, B, C, D, and L edge lights, repair Runway 15/33, Repair Transportation Working Capital Fund apron.	Currently unknown	FY 2013
Construct Munitions Storage Area	Currently unknown	FY 2014 – FY 2018
Construct Physical Fitness Facility	Currently unknown	FY 2014 – FY 2018
Construct Fire Station	Currently unknown	FY 2014 – FY 2018
Construct Global Reach Development Complex	Currently unknown	FY 2014 – FY 2018
Construct Education and Professional Development Center	Currently unknown	FY 2014 – FY 2018

**Table 5.2.1-1. Past, Present, and Reasonably Foreseeable Actions in the ROI for JB MDL**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
Construct Unified Security Forces Operations Facility	Currently unknown	FY 2014 – FY 2018
Addition to Combat Communications Admin Facility, Building 3514	Currently unknown	FY 2014 – FY 2018
Construct Army Aviation Support Facility	Currently unknown	FY 2014 – FY 2018
Construct Aviation Readiness Center	Currently unknown	FY 2014 – FY 2018
Construct Communications-Electronics Research, Development, and Engineering Center	Currently unknown	FY 2014 – FY 2018
<b>Other Projects</b>		
Hurricane Sandy U.S. Army Corps of Engineers disaster relief projects to repair, restore, and fortify the coastline. Four projects exceed NO <sub>x</sub> trigger level of 100 TPY.	N/A	FY 2014 – FY 2016

Notes: SF = square foot; 108 WG = 108<sup>th</sup> Wing; FY = Fiscal Year; JB MDL = Joint Base McGuire-Dix-Lakehurst; N/A = Not Applicable; TPY = tons per year

## **5.2.2 Cumulative Impacts**

### **5.2.2.1 Noise**

Under Alternative #2, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 1,831 acres. Of the acreage exposed to 65 dB DNL or greater, approximately 751 would be off-airport property. While there are other projects listed in Table 5.2.1-1 that have the ability to add noise to the environment at JB MDL, most of these are short-term construction projects that would occur in what is otherwise an industrial setting. Noise from implementation of these actions would be short-term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at JB MDL would be minimal.

### **5.2.2.2 Air Quality**

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.2.1-1 at JB MDL (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants except NO<sub>x</sub>. JB MDL and the USACE have entered into a Memorandum of Agreement that would allow temporary use of a portion of the NO<sub>x</sub> SIP emissions budget for calendar years 2014 through 2016 to allow the USACE to proceed with construction projects to repair, restore, and fortify the coastline in the state of New Jersey in response to damage during Hurricane Sandy (JB MDL and USACE 2013). The USACE projects will be completed prior to implementation of Alternative

#2 at JB MDL, should that alternative be selected for the KC-46A MOB 2 beddown; therefore, the temporary use of NO<sub>x</sub> emissions within the SIP would be complete by the time the emissions associated with Alternative #2 would occur, which would be scheduled to commence in 2018.

A Conformity Determination as required under the General Conformity Rule would ensure that the selected action would conform to the requirements of the applicable SIP and would not cause or contribute to a delay in attainment consistent with 42 USC § 7506(c). The purpose of the General Conformity Rule is to demonstrate that project emissions, combined with all of the other air basin emissions, would not result in a cumulative impact and thereby delay attainment of the air quality standards. The ANG has prepared a Draft Conformity Determination that demonstrates that emissions associated with Alternative #2 are within the SIP NO<sub>x</sub> emissions budget for JB MDL. It is anticipated that the ANG will obtain an affirmative Conformity Determination prior to signing of the ROD. Thus, given that Alternative #2 will have demonstrated conformity with the SIP, cumulative impacts to air quality would not be significant.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on JB MDL beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

### 5.2.2.3 Safety

Providing new and renovated facilities for the 108 WG that support operational requirements and are properly sited with adequate space and a modernized supporting infrastructure would generally improve ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 108 WG. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. A new fire station would enhance fire and crash response capability at JB MDL. Risk of a catastrophic event occurring during construction activities described under Alternative #2 or those activities described in Table 5.2.1-1 is considered to be low, and strict adherence to

all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Additionally, the new munitions storage area facility at JB MDL would be sited in accordance with AFMAN 91-201 and improve munitions safety. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.2.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.2.2.4 Soils and Water

##### *Soils*

In addition to the 204,009 SF (4.7 acres) of surface disturbance that would result from the implementation of Alternative #2, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.2.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.2.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

The Farmland Protection Policy Act is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. Provided that the projects in Table 5.2.1-1 are all within federal lands, each project would be subject to Farmland Protection Policy Act compliance. Should any of these projects have the potential to convert farmland to non-farm use, a land evaluation and site assessment would be conducted and alternative sites considered should potential adverse impacts to farmland exceed the recommended allowable level.



## Water

In addition to the 104,884 SF (2.4 acres) of new impervious surface that would result from Alternative #2, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.2.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.2.1-1 are located within federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

### 5.2.2.5 Biological Resources

DNL noise contours would be expected to increase over 1,831 acres. However, the noise levels from operations and construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with aircraft and military operations. Noise levels from construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the 108 WG are projected to increase by approximately 111 percent from baseline operations (15 percent increase in total airfield operations). An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.2.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 108 WG installation and at JB MDL would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. No federally listed species are currently known to occur on the 108 WG installation and there is only

a low potential for them to occur within the vicinity due to the lack of habitat. Six state listed species have been observed on McGuire Field. Grassland habitat located within the potential ramp expansion area could provide habitat for these species. However, to the extent possible, construction would not occur during the breeding season for grassland birds (March 15 to July 31). Cumulative impacts to biological resources would be minor.

#### 5.2.2.6 Cultural Resources

The area of proposed construction is considered to have no to low probability of containing archaeological resources. Additionally, the Proposed Action would disturb a relatively small amount of acreage, all of which has previously been disturbed. The proposed use is consistent with the installations historical land use for over 70 years. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #2 or any of the projects listed in Table 5.2.1-1, activities would immediately cease in the area of the discovery and the JB MDL Cultural Resource Manager would immediately be contacted for further instruction. None of the facilities listed for renovation and/or modification under Alternative #2 or those listed in Table 5.2.1-1 are eligible for listing in the NRHP. Two of the buildings (3333 and 3336) listed for renovation and/or modification under Alternative #2 are less than 20 years old. Hangar 3322 (built in 1957) was evaluated for NRHP eligibility in 2013 and the results of the inventory indicated that Hangar 3322 is not eligible (JB MDL 2013d). SHPO consultation for this EIS has provided concurrence that no historic properties would be affected under the proposed action (see Saunders 2013 in Appendix B3). No traditional cultural resources have been identified on the installation. Therefore, contingent upon evaluation of Building 3322, no cumulative impacts to cultural resources are anticipated.

#### 5.2.2.7 Land Use

Under Alternative #2, acreage off airport property contained within the 65 dB DNL and greater noise contours would increase by approximately 751 acres. In general, land uses surrounding JB MDL would not be adversely affected by the activities described under Alternative #2 in concert with those described in Table 5.2.1-1. The location and function of proposed structures within the JB MDL are compatible with the surrounding area. Although future development at JB MDL and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the counties, cities and other municipalities. Project specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment in and near airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.2.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #2. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.2.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.2.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet, with the exception of ODSs. Under Alternative #2, the total number of flying hours for the 108 WG would increase approximately 118 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.2.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.2.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.2.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.2.1-1, such as employment and materials purchasing,

would provide short-term economic benefits to the local economy. Additionally, there would be a permanent increase of 287 military positions. However, short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #2 and those projects listed in Table 5.2.1-1 would be negligible on a regional scale.

#### 5.2.2.11 Environmental Justice and the Protection of Children

Under Alternative #2, in concert with those projects listed in Table 5.2.1-1, roughly 128 persons (48 more than baseline) that would be affected by DNL between 65 dB and 75 dB, approximately 23 would be minority (18 percent). This is an increase of 11 people, or 3 percent, of minorities affected. The number of low-income persons affected by DNL greater than 65 dB would be approximately 6 (an increase of 2 people and less than 1 percent). Overall, the number of persons affected by DNL of 65 dB and greater would increase slightly under this alternative, and the increase in the percentage of minority and low-income persons affected would be minor. Under Alternative #2, there would be no new Kindergarten through Grade 12 schools exposed to a DNL of 65 dB or above; however, the child development center that is currently under the 65 dB contour would be located under the 70 dB contour. There would not be disproportionate cumulative impacts to minority or low-income populations in the vicinity of JB MDL as a result of this action in concert with the current noise impacts from the airport. There are no other projects listed in Table 5.2.1-1 that would be expected to impact environmental justice communities or the health or safety of children.

### 5.3 ALTERNATIVE #3 -- PEASE AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

#### 5.3.1 Past, Present, and Reasonably Foreseeable Actions

Portsmouth IAP is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #3 are discussed in this section. The ROI for cumulative impacts is generally limited to Portsmouth IAP and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.3.1-1.

**Table 5.3.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Pease ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>157 ARW Projects</b>		
Airfield Pavements: Repair and upgrade pavement areas	61,281	FY 2014 – FY 2015
Building 252: Repair roof	26,200	FY 2014 – FY 2015
Parking Lots: Repair Installation-Wide (Crack Seal/ Seal Coat)	270,000	FY 2014 – FY 2015
Bulk Fuel Roads: Repair and upgrade asphalt	57,654	FY 2014 – FY 2015
Building 257: Renovate for Security Forces	14,000	FY 2014 – FY 2015
Building 251: Renovate for Fuel Cell Operations	27,471	FY 2014 – FY 2015
Building 151: Build addition to support medical facilities	12,126	FY 2016 – FY 2018
Building 244: Demolish for Security Forces Facility	24,047	FY 2016 – FY 2018
Non-Organizational Parking: Replace to conform to AT/FP standards	150,021	FY 2016 – FY 2018
Building 152: Demolish for proposed expansion of facilities	14,486	FY 2016 – FY 2018
Building 244: Demolish for Security Forces Facility	24,047	FY 2016 – FY 2018
Parking Apron: Upgrade and add Hydrant, including interstitial monitoring and containment	198,000	FY 2016 – FY 2018
Aircraft Parking Apron: Repair as Phase V for Multi-Hangar construction	296,766	FY 2016 – FY 2018

Notes: SF = square foot; 157 ARW = 157<sup>th</sup> Air Refueling Wing; FY = Fiscal Year

### 5.3.2 Cumulative Impacts

#### 5.3.2.1 Noise

Under Alternative #3, the number of acres contained within the 65 dB DNL and greater exposure area would increase by approximately 135 acres. Of the acreage exposed to 65 dB DNL or greater, approximately 4 would be off the airport property. There are no residential areas that underlie the noise contours under this alternative. While there are other projects listed in Table 5.3.1-1 that have the ability to add noise to the environment at Portsmouth IAP, most of these are short-term construction projects that would occur in what is otherwise an industrial setting. Noise from implementation of these actions would be short term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at Portsmouth IAP would be minimal.

#### 5.3.2.2 Air Quality

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.3.1-1 at Pease ANGS (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants. Therefore, cumulative impacts to air quality would not be significant.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Pease ANGS beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

#### 5.3.2.3 Safety

Providing new and renovated facilities for the 157 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting

infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 157 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. The fire and crash response capability currently provided by the 157 ARW at Portsmouth IAP is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #3 or those activities described in Table 5.3.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.3.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.3.2.4 Soils and Water

##### *Soils*

In addition to the 130,966 SF (3.0 acres) of surface disturbance that would result from implementation of Alternative #3, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.3.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.3.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.



## *Water*

In addition to the 23,617 SF (0.5 acre) of new impervious surface that would result from Alternative #3, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.3.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.3.1-1 are located within Federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

### **5.3.2.5 Biological Resources**

Noise contours would be expected to increase by 135 acres from baseline with the conversion to the KC-46A aircraft. However, these noise levels from operations and construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the 157 ARW at Portsmouth IAP are projected to increase by approximately 44 percent from baseline operations (7 percent increase in total airfield operations). An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird-aircraft strikes to occur, including those with migratory birds. No federally threatened and endangered species are currently known to occur on Portsmouth IAP; however, eight state listed species are currently known to occur on Portsmouth IAP. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.3.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 157 ARW installation and at Portsmouth IAP would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However,

wildlife that uses these areas is typical of urban and suburban areas. Cumulative impacts to biological resources would be minor.

#### 5.3.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #3 or any of the projects listed in Table 5.3.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. None of the facilities listed for renovation and/or modification under Alternative #3 or those listed in Table 5.3.1-1 are eligible for listing in the NRHP. The SHPO has concurred with a “no historic properties affected” determination (Muzzey 2013). No traditional cultural resources have been identified on the installation. Therefore, no cumulative impacts to cultural resources are anticipated.

#### 5.3.2.7 Land Use

Under Alternative #3, acreage off airport property contained within the 65 dB DNL and greater noise contours would increase by approximately 135 acres. In general, land uses surrounding Portsmouth IAP would not be adversely affected by the activities described under Alternative #3 in concert with those described in Table 5.3.1-1. The location and function of proposed structures within the Pease ANGTS are compatible with the surrounding area. No future development at Portsmouth IAP and adjacent areas has been identified; however, any future development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project-specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment in and near airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.3.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #3. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.3.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily

affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.3.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet with the exception of ODSs. Under Alternative #3, the total number of flying hours for the 157 ARW would increase approximately 29 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.3.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.3.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.3.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.3.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. Additionally, there would be a permanent increase of 171 military positions. However, short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #3 and those projects listed in Table 5.3.1-1 would be negligible on a regional scale.

#### 5.3.2.11 Environmental Justice and the Protection of Children

Under Alternative #3 in concert with those projects listed in Table 5.3.1-1, there would be no residential populations, including no minority or low-income populations, located within the

projected 65 dB DNL noise contour in the vicinity of Portsmouth IAP. There are no other projects listed in Table 5.3.1-1 that would be expected to impact environmental justice communities. Therefore, there would be no cumulative impacts to the health or safety of children.

## 5.4 ALTERNATIVE #4 -- PITTSBURGH AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.4.1 Past, Present, and Reasonably Foreseeable Actions

Pittsburgh IAP is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #4 are discussed in this section. The ROI for cumulative impacts is generally limited to Pittsburgh IAP, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.4.1-1.

**Table 5.4.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Pittsburgh ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>171 ARW Projects</b>		
Interior renovations of Buildings 310 (Jet Engine Shop and AGE), 316 (non-powered AGE Corrosion Control and Nondestructive Inspection), and 307 (Small Air Terminal Facility)	NA	FY 2013
Construct new security forces and physical fitness facility.	8,000	Within the next 5 years.
Interior renovations of Building 300 (Medical, dining hall, and operations and training), Hangars 301 and 302 (for various uses), and 110 and 120 (supply consolidation).	Currently unknown	Within the next 5 years.
Expand Building 206: Special Operations Weather Team	5,655	Within the next 5 years.
Expand Building 107 for small air terminal.	12,800	Within the next 5 years.
Construct new AT/FP commercial vehicle inspection facility.	N A	Within the next 5 years.
Phase 1: Demolition of current parking areas (108 parking spaces) and construction of new parking (107 parking spaces) for AT/FP compliance. Phase 2: Demolition of current parking areas (206 parking spaces) and construction of new parking (230 parking spaces) for AT/FP compliance.	Currently unknown	Completed within the last few years.

**Table 5.4.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Pittsburgh ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
Demolition of Buildings 102 (Reserve Forces Training, Physical Fitness), 103 (Security Forces, Nondestructive Inspection Shop), and 105 (Base Exchange).	18,292	Within the next 5 years.
Plan identified renovate Building 304 and move the Fire Station to this building.	N/A	Within the next 5 years.
Construct Deployment Processing Center and Relocate Munitions Storage Area.	8,000	Within the next 5 years.
Construct New Simulator Facility	6,600	Within the next 5 years.
<b>911<sup>th</sup> Airlift Wing Pittsburgh IAP Air Reserve Station</b>		
Acquisition by lease of a 26-acre parcel at the Pittsburgh IAP known as the “T-Ramp” owned by ACAA. The 911 <sup>th</sup> Airlift Wing has been using the T-Ramp property since 1993 under a Memorandum of Agreement to provide space for the 911 <sup>th</sup> Airlift Wing to relocate C-130 aircraft for parking during construction activity.	NA	Within the past year.
<b>Pittsburgh IAP</b>		
U.S. Airways pulled its hub out of Pittsburgh IAP in 2004, dropping passenger traffic by over 8 million, significantly reducing airfield operations and eliminating approximately 7,000 jobs.	NA	FY 2004
Drilling of Marcellus Shale oil and natural gas well sites on Pittsburgh IAP property	NA	Within the next 5 years.
Two non-aviation buildings being constructed west of highway off airport property.	NA	In progress

*Notes:* SF = square foot; 171 ARW = 171<sup>st</sup> Air Refueling Wing; AGE = aerospace ground equipment; FY = Fiscal Year; AT/FP = anti-terrorism/force protection; IAP = International Airport; ACAA = Allegheny County Airport Authority

## 5.4.2 Cumulative Impacts

### 5.4.2.1 Noise

Under Alternative #4, the number of acres contained within the 65 dB DNL and greater exposure area would decrease by approximately 79 acres. Of the acreage exposed to 65 dB DNL or greater, approximately 23 would be off-airport property. Residential use areas that underlie the noise contours would be slightly reduced under Alternative #4. While there are other projects listed in Table 5.4.1-1 that have the ability to add noise to the environment at Pittsburgh IAP, most of these are short-term construction projects that would occur in what is otherwise an industrial setting. Noise from implementation of these actions would be short-term and localized to the airport environs, and would not be expected to increase the overall DNL noise contours. Cumulative impacts to the noise environment at Pittsburgh IAP would be minimal.

#### 5.4.2.2 Air Quality

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.4.1-1 at Pittsburgh ANGS (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants. Therefore, cumulative impacts to air quality would not be significant.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Pittsburgh ANGS beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

#### 5.4.2.3 Safety

Providing new and renovated facilities for the 171 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 171 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. Additional beneficial impacts would occur from a new AT/FP commercial vehicle inspection facility and parking. The fire and crash response capability currently provided by the 171 ARW at Pittsburgh IAP is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #4 or those activities described in Table 5.4.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.4.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements. No adverse impacts to ground safety are anticipated at the airfield. There would be a large decrease in



airfield operations at Pittsburgh IAP from those previously analyzed as a result of the U.S. Airways ceasing operations at Pittsburgh IAP. No increase in the safety risk is expected due to the accident and mishap potential associated with aircraft operations. Cumulative impacts to safety would be negligible.

#### 5.4.2.4 Soils and Water

##### *Soils*

In addition to the 186,395 SF (4.3 acres) of surface disturbance that would result from implementation of Alternative #4, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.4.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.4.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of construction standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

##### *Water*

In addition to the 88,529 SF (2.0 acres) of new impervious surface that would result from Alternative #4, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.4.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.4.1-1 are located within federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

#### 5.4.2.5 Biological Resources

Noise levels from construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the 171 ARW at Pittsburgh IAP would be projected to increase by approximately 33 percent from baseline operations. An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No federally threatened and endangered species are currently known to occur on Pittsburgh IAP. One state listed species is currently known to occur on Pittsburgh IAP. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.4.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 171 ARW installation and at Pittsburgh IAP would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. Cumulative impacts to biological resources would be minor.

#### 5.4.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #4 or any of the projects listed in Table 5.4.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. None of the facilities listed for renovation and/or modification under Alternative #4 or those listed in Table 5.4.1-1 are eligible for listing in the NRHP. The SHPO has concurred that two of the buildings listed for renovation and/or modification under Alternative #4 are not eligible to the NRHP (see MacDonald 2011 in Appendix B4). The third building is less than 15 years old and not a resource of exceptional significance (eligible under Criterion Consideration G); therefore, it is

not eligible to the NRHP. No traditional cultural resources have been identified on the installation. Therefore, no cumulative impacts to cultural resources are anticipated.

#### 5.4.2.7 Land Use

Under Alternative #4, acreage off airport property contained within the 65 dB DNL and greater noise contours would decrease by approximately 23 acres resulting in beneficial impacts. In general, land uses surrounding Pittsburgh IAP would not be adversely affected by the activities described under Alternative #4 in concert with those described in Table 5.4.1-1. The location and function of proposed structures within the Pittsburgh ANGTS are compatible with the surrounding area. Although future development at Pittsburgh IAP and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment to airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.4.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be expected to increase slightly as a result of the increase in personnel under Alternative #4. Further, building space and facilities to be constructed as a component of this action as well as those identified in Table 5.4.1-1 may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.4.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135

fleet with the exception of ODSs. Under Alternative #4, the total number of flying hours for the 171 ARW would increase approximately 34 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.4.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. No changes to the installation's large quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.4.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. None of the ERP sites overlap the proposed construction projects under Alternative #4. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.4.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.4.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. However, short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #4 and those projects listed in Table 5.4.1-1 would be negligible on a regional scale.

#### 5.4.2.11 Environmental Justice and the Protection of Children

Under Alternative #4, of the roughly 12 persons that would continue to be affected by DNL above 65 dB DNL, none are considered to be minorities or low-income populations. No additional minorities or low-income populations would be impacted by aircraft DNL greater than 65 dB under Alternative #4. There would not be disproportionate cumulative impacts to minority or low-income populations in the vicinity of Pittsburgh IAP as a result of this action in concert with the projects listed in Table 5.4.1-1. Therefore, there would be no cumulative impacts to the health or safety of children.

## 5.5 ALTERNATIVE #5 -- RICKENBACKER AIR NATIONAL GUARD STATION CUMULATIVE EFFECTS

Cumulative impacts to environmental resources result from incremental effects of proposed actions when combined with other past, present, and reasonably foreseeable future projects in the ROI. Cumulative impacts can result from individually minor, but collectively substantial, actions undertaken over a period of time by various agencies (federal, state, and local) or individuals. In accordance with NEPA, a discussion of cumulative impacts resulting from projects that are proposed (or anticipated over the foreseeable future) is required.

### 5.5.1 Past, Present, and Reasonably Foreseeable Actions

Rickenbacker IAP is an active, dynamic airfield where operational changes and facility upgrades occur on a frequent basis. Projects that have been identified in the ROI that have the potential to act in a cumulative manner with Alternative #5 are discussed in this section. The ROI for cumulative impacts is generally limited to Rickenbacker IAP, and the immediately adjacent property because physical impacts related to the proposal are largely confined to these properties. Planning efforts in the ROI include the actions described within this EIS, as well as those other projects that are ongoing, or planned over the short term. Additional projects within the ROI are discussed below in Table 5.5.1-1.

**Table 5.5.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Rickenbacker ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
<b>121 ARW Projects</b>		
Under the NDAA Implementation Plan, Rickenbacker ANG will lose 6 KC-135s in FY 2013.	NA	In progress – FY 2013
New main entrance and guard house: Construction of a new Main Entrance to include 100 percent inspection area, vehicle turn-around, truck inspection canopy, and guardhouse. This includes 32,000 SF of new impervious surface.	47,030	Completed within the last few years
Repair Aircraft Ramp: Seal existing concrete joints, repair storm drain, mill asphalt; remove concrete pavement, pour new asphalt pavement with base, pour new concrete pavement for aircraft parking.	1,336,630	In progress – FY 2014
New Small Arms Indoor Range System: New Small Arms Range, range supplies and equipment storage. This includes 14,400 SF of new impervious surface.	18,400	Within the next 5 years
New Composite Reserve Forces Operations and Training and Medical Training/Administration Facility: Mission Support Group/Mission Support Flight, Medical Administration, Medical Training. This includes 68,220 SF of new impervious surface.	176,220	Within the next 5 years

**Table 5.5.1-1. Past, Present, and Reasonably Foreseeable Actions  
in the ROI for Rickenbacker ANG**

<i>Project Name/Descriptions</i>	<i>Approximate Square Footage (SF)</i>	<i>Timeframe</i>
New Civil Engineering Pavements and Grounds and Central Hazardous Waste Facility: Pavements and Grounds Facility, Central Hazardous Waste Accumulation Point. This includes 8,000 SF of new impervious surface.	22,850	Within the next 5 years
Repair Base Asphalt Pavements	234,000	Completed within the last few years
Renovate/Repair Building 872: Renovate Building 872 office areas, install Exterior Insulation and Finish System, new windows, and repair lintels and sills in warehouse.	0	Completed within the last few years
Replace Existing Water Lines: Replace water pipes and valves, install new smart water meters.	280,830	Within the next 5 years
<b>Rickenbacker IAP</b>		
Rickenbacker Parkway Phase 1 and 2A: Construction of a median-divided four-lane curb and gutter asphalt roadway. Total length was approximately 3.3 miles along the west side of the airport. Phase 1 was completed in 2006 (Phase 1A) and 2007 (Phase 1B). Phase 2A was completed 2012.	NA	Completed within the last seven years
Rickenbacker Parkway Phase 2B: Extension of the median-divided four-lane curb and gutter asphalt roadway to the north side of the airport up to and including improvements (primarily lane widening) to SR 317 and Alum Creek Drive. Project is out to bid now and will be constructed 2013 through 2014.	NA	Within next few years.
Groveport Road Reconfiguration Phase 1 and Phase 2: Phase 1 included the primarily lane widening at the intersection of Groveport Road and Alum Creek Drive just south of Interstate 270 intersection. Completed in 2012. Phase 2 includes a new bridge and roundabouts to reconfigure vehicular traffic flow at the intersection of Groveport Road and Alum Creek Drive. Project is under construction and will be complete in 2013.	NA	Completed in 2012/To be completed in 2013
East-West Connector (Pickaway County south of airport) Phase 1A and 1B: Phase 1A includes the reconstruction and widening (to 3 lanes) of Duvall Road from SR 23 over to Ashville Pike, including a bridge over the existing railroad tracks. Phase 1B includes the reconstruction and widening (to 3 lanes) of Ashville Pike from Duvall Road up to Rickenbacker Parkway. Project is being bid and construction will start summer 2013 and be complete in 2014.	NA	To be completed in 2014

*Notes:* SF = square foot; 121 ARW = 121<sup>st</sup> Air Refueling Wing; NDAA = National Defense Authorization Act; ANG = Air National Guard Station; FY = Fiscal Year; IAP = International Airport; SR = State Route

## 5.5.2 Cumulative Impacts

### 5.5.2.1 Noise

Under Alternative #5, the number of acres contained within the 65 dB DNL and greater exposure area would decrease slightly by approximately 99 acres, including a reduction of approximately 72 acres of off-airport property. There are no residential areas that underlie the noise contours under this alternative. While there are other projects listed in Table 5.5.1-1 that have the ability to add noise to the environment at Rickenbacker IAP, most of these are short-term construction

projects that would occur in what is otherwise an industrial setting other than the reduction of aircraft assigned to the 121 ARW which would cause further reduction in noise contours. Noise from implementation of these actions would be localized to the airport environs, and would not be expected to increase the overall noise contours. Cumulative impacts to the noise environment at Rickenbacker IAP would not be significant.

#### 5.5.2.2 Air Quality

The net annual emissions increases from the proposed KC-46A beddown as well as those other projects described in Table 5.5.1-1 at Rickenbacker ANG (including both construction and airfield operations) would be below the CAA PSD major source thresholds and/or the General Conformity Rule *de minimis* thresholds as set forth in the CAA for all pollutants. Due to the projected loss of aircraft in FY 2013, this would further reduce emissions. It is not anticipated that any of the projects identified in Table 5.5.1-1 would impact air quality.

The potential effects of GHG emissions from the Proposed Action are by nature global. Substantial temperature increases attributable to global climate change could result in a variety of impacts to the people, economy, and environment. These impacts include potential impacts to ecosystems, wildlife and agriculture, increases in the incidence of wildfires, changes in precipitation levels, and rising sea levels. The impacts of global climate change would not be expected to have a substantial impact on Rickenbacker ANG beyond regional impacts to the area in general.

Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

#### 5.5.2.3 Safety

Providing new and renovated facilities for the 121 ARW that support operational requirements of the KC-46A, and are properly sited with adequate space and a modernized supporting infrastructure would generally enhance ground and flight safety during required operations, training, maintenance and support procedures, security functions, and other activities conducted by the 121 ARW. AT/FP requirements have also been addressed to the extent practicable in all facility construction projects. The fire and crash response capability currently provided by the 121 ARW at Rickenbacker IAP is sufficient to meet all requirements. Risk of a catastrophic event occurring during construction activities described under Alternative #5 or those activities



described in Table 5.5.1-1 is considered to be low, and strict adherence to all applicable occupational safety requirements would further minimize the relatively low risk associated with described construction activities. PAA reduction under the 2013 NDAA would further reduce safety concerns. Cumulative impacts to ground or flight safety would be negligible at the airfield. Construction and repair projects identified in Table 5.5.1-1 would be beneficial to safety with pavement repairs and AT/FP enhancements.

#### 5.5.2.4 Soils and Water

##### *Soils*

In addition to the 368,330 SF (8.5 acres) of surface disturbance that would result from implementation of Alternative #5, additional surface area would be disturbed in the vicinity as a result of the projects described in Table 5.5.1-1 over the next 5 years.

The CWA considers stormwater from a construction site as a point source of pollution regulated by the NPDES permit. Therefore, those projects described in Table 5.5.1-1 larger than 1 acre would be required to have a site-specific and detailed SWPPP that coordinates the timing of soil disturbing activities with the installation of soil erosion and runoff controls in an effort to reduce the impacts to the local watershed; this is an effective way of controlling erosion while soil is exposed and subject to construction activity. Implementation of standard construction practices would be used to limit or eliminate soil movement, stabilize erosion, and control sedimentation. These standard construction practices would include the use of: velocity dissipation devices; well-maintained silt fences; minimizing surficial area disturbed; stabilization of cut/fill slopes; minimization of earth-moving activities during wet weather; and use of temporary detention ponds. Following construction, disturbed areas not covered with impervious surfaces would be reestablished with appropriate vegetation and managed to minimize future erosion potential. Given the use of engineering practices that would minimize potential erosion, cumulative impacts to earth resources would be expected to be minor.

##### *Water*

In addition to the 14,660 SF (0.3 acre) of new impervious surface that would result from Alternative #5, other increases in impervious surfaces would also occur in the vicinity as a result of the projects described in Table 5.5.1-1 over the next 5 years.

Cumulative impacts to the hydrologic cycle as a result of increasing impervious surface would be dependent on the unique conditions present at the site and its watershed. LID is a stormwater management approach that mimics nature's ability to clean and store stormwater runoff

accomplished through use of standard construction practices that infiltrate, filter, store, reuse, evaporate, and detain runoff close to its source.

Provided that the projects listed in Table 5.5.1-1 are located within federal lands, compliance with UFC 3-210-10, LID (as amended, 2010) and EISA Section 438 would ensure any increase in surface water runoff as a result of the proposed construction would be attenuated through the use of temporary and/or permanent drainage management features such that post-development runoff rates would be equal to or less than pre-development rates. Additionally, it is expected that any construction activities would adhere to NPDES requirements including implementation of standard construction practices described above. As such, cumulative impacts to water resources would be expected to be minor.

#### 5.5.2.5 Biological Resources

Noise from temporary construction would not be expected to impact wildlife in the area because they are accustomed to elevated noise levels associated with current aircraft and military operations. Annual operations for the KC-46A at Rickenbacker IAP are projected to increase by approximately 6 percent from baseline operations. An increase in levels of operations (e.g., sorties) may result in a slight increased opportunity for bird/wildlife aircraft strikes to occur, including those with migratory birds. No federally threatened and endangered species and one state listed species are currently known to occur on Rickenbacker IAP. Construction-related impacts to the vegetation at the installation and in the vicinity of projects identified in Table 5.5.1-1 would be negligible due to the lack of sensitive vegetation in the project areas. There are no wetland areas that occur within the vicinity of the project footprints. In general, construction activities at the 121 ARW installation and at Rickenbacker IAP would primarily occur on sites that are already highly altered by man. These impacts would include the removal of some vegetation and associated wildlife habitat. However, wildlife that uses these areas is typical of urban and suburban areas. Cumulative impacts to biological resources would be minor.

#### 5.5.2.6 Cultural Resources

The installation is considered to have no to low probability of containing archaeological resources. In the unlikely event that archaeological or human remains were identified during proposed construction activities associated with Alternative #5 or any of the projects listed in Table 5.5.1-1, activities would immediately cease in the area of the discovery and appropriate personnel would contact a qualified archaeologist to evaluate the discovery. Under the Proposed Action, two of the buildings proposed for modification are eligible for listing in the NRHP (Hangar 885 and 888) (Snyder 2007). Hangar 885 would have an addition and renovations inside to house the new aircraft and support facilities. Because these renovations would alter the

exterior appearance of a structure that is considered eligible because of its design, the construction would have an adverse effect on a historic property. Modifications to Hangar 888 would all be interior and are not expected to have an adverse effect on this NRHP-eligible resource. Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 KC-46 beddown, further consultation would be conducted to minimize and mitigate adverse effects to these buildings (see Appendix B, Section B3). No traditional cultural resources have been identified on the installation. Cumulative impacts to cultural resources are anticipated to be minor.

#### 5.5.2.7 Land Use

Under Alternative #5, acreage off airport property contained within the 65 dB DNL and greater noise contours would decrease by approximately 72 acres resulting in beneficial impacts. In general, land uses surrounding Rickenbacker IAP would not be adversely affected by the activities described under Alternative #5 in concert with those described in Table 5.5.1-1. The location and function of proposed structures within the Rickenbacker ANG are compatible with the surrounding area. Although future development at Rickenbacker IAP and adjacent areas is anticipated, development would be subject to planning and land use requirements, including those associated with the airport, counties, cities and other municipalities. Project-specific studies would be performed to determine and address any projects that would result in land use conflicts, such as encroachment airfield safety zones. Cumulative impacts to land use as a result of the described activities, including impacts from noise and air quality, would be expected to be negligible.

#### 5.5.2.8 Infrastructure and Transportation

Demand for electricity and natural gas would be commensurate with the impacts from the loss of six aircraft and the increase in personnel under Alternative #5. Further, building space and facilities to be constructed as a component of this action, as well as those identified in Table 5.5.1-1, may require additional electricity. In addition, wastewater, solid waste, demand for potable water, and traffic would temporarily increase during construction, and would increase slightly in the long-term due to increase in personnel. The proposed construction and demolition activities could temporarily affect the quality of stormwater runoff through potential increases in soil erosion. Standard construction practices would be implemented during construction and demolition to minimize runoff. Any new facilities and additions associated with these projects would be implemented with more energy efficient design standards and utility systems than are currently in place. In addition, construction projects would incorporate LEED and sustainable development concepts to achieve optimum resource efficiency, sustainability, and energy

conservation. In general, cumulative impacts to installation infrastructure as a result of described activities would be expected to be positive over the long-term.

#### 5.5.2.9 Hazardous Materials and Waste

The type of hazardous materials needed for maintenance and operation of the KC-46A would be expected to remain similar to those currently used for maintenance and operation of the KC-135 fleet, with the exception of ODSs. Under Alternative #5, the total number of flying hours for the 121 ARW would increase approximately 11 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately. Furthermore, it is expected that short-term increases would be realized in terms of the quantity of fuel used during construction activities for this action as well as those listed in Table 5.5.1-1. Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation's Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation's small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations. In addition, any structures listed in Table 5.5.1-1 proposed for demolition, addition, or retrofit would be inspected for ACM and LBP according to established ANG procedures prior to any renovation or demolition activities. Cumulative impacts as a result of the described activities are expected to be minor.

#### 5.5.2.10 Socioeconomics

Economic activity associated with proposed construction activities described as a component of this alternative and those shown in Table 5.5.1-1, such as employment and materials purchasing, would provide short-term economic benefits to the local economy. Under the NDAA Implementation Plan, the 121 ARW will lose six KC-135 aircraft, including a reduction in personnel. As a result, cumulative impacts under Alternative #5 would mean a greater increase in personnel than projected, and therefore a greater increase in total annual salary for the full-time employees based on those changes. Short-term beneficial impacts resulting from construction payrolls and materials purchased as a result of implementation of Alternative #5 and those projects listed in Table 5.5.1-1 would be negligible on a regional scale.

#### 5.5.2.11 Environmental Justice and the Protection of Children

Under Alternative #5, in concert with those projects listed in Table 5.5.1-1, there would be no residential populations, including no minority or low-income populations, located within the projected 65 dB DNL noise contour in the vicinity of Rickenbacker IAP. There are no other projects listed in Table 5.5.1-1 that would be expected to impact environmental justice

communities. Under Alternative #5 there would be no schools exposed to aircraft DNL of 65 dB or above. Therefore, there would be no cumulative impacts to the health or safety of children.

## **5.6 IRREVERSIBLE AND IRRETRIEVABLE COMMITMENT OF RESOURCES FOR ALL ALTERNATIVES**

NEPA CEQ regulations require environmental analyses to identify “...any irreversible and irretrievable commitments of resources that would be involved in the Proposed Action should it be implemented” (40 CFR Section 1502.16). Irreversible and irretrievable resource commitments are related to the use of nonrenewable resources and the effects the uses of these resources have on future generations. Irreversible effects primarily result from the use or destruction of a specific resource (e.g., energy and minerals) that cannot be replaced within a reasonable time frame. Building construction material such as gravel and gasoline usage for construction equipment would constitute the consumption of non-renewable resources. Irretrievable resource commitments also involve the loss in value of an affected resource that cannot be restored as a result of the action.

The primary irretrievable impacts of implementation of the Proposed Action for any of the alternatives would involve the use of energy, labor, materials and funds, and the conversion of some lands from an undeveloped condition through the construction of buildings and facilities on the installation. Irretrievable impacts would occur as a result of construction, facility operation, and maintenance activities. Direct losses of biological productivity and the use of natural resources from these impacts would be inconsequential.

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## INDEX

---

- Accident Potential Zone (APZ), 2-6, 3-10, 3-37, 3-46, 3-66, 3-93, 3-119, 4-39, GLOSS-1
- Air Installation Compatible Use Zone (AICUZ), ES-10, ES-20, 2-58, 2-68, 3-28, 3-46, 4-156, GLOSS-1
- AP/1B, ES-8, 2-4, GLOSS-2
- Area of Concer (AOC), 3-105, 3-132
- Asbestos-Containing Material (ACM), ES-19, ES-20, 2-67, 2-68, 3-23, 3-50, 3-78, 3-104, 3-131, 4-22, 4-24, 4-26, 4-54, 4-56, 4-58, 4-85, 4-87, 4-90, 4-115, 4-116, 4-120, 4-147, 4-149, 4-152, 5-6, 5-14, 5-21, 5-29, 5-36
- Bird/Wildlife Aircraft Strike Hazard (BASH), ES-12, ES-20, 2-60, 2-68, 3-11, 3-12, 3-37, 3-38, 3-66, 3-67, 3-93, 3-94, 3-119, 3-120, 4-11, 4-12, 4-16, 4-40, 4-41, 4-46, 4-73, 4-78, 4-103, 4-108, 4-134, 4-139, 4-140, 6-2, 6-3, 6-4, 6-5, 6-9, GLOSS-2
- Boeing Michigan Aerospace Research Center (BOMARC), 3-45
- Boom/Probe and Drogue Refueling, ES-3, 1-4, GLOSS-2
- Central Accumulation Point (CAP), 3-23, 3-51, 3-79, 3-104, 3-132
- Command and Control (C2), 1-4, 1-5, 1-6, 1-8, 2-2
- Command, Control, Communications, and Computers (C4), ES-3, 1-4
- Conformity Determination, ES-11, 2-59, 2-69, 4-36, 4-38, 5-10, GLOSS-3
- Construction Emissions, ES-11, 2-59, 4-8, 4-9, 4-37, 4-38, 4-70, 4-71, 4-100, 4-101, 4-131, 4-132
- Consultation, 1-11, 3-46, 4-17, 4-26, 4-48, 4-58, 4-80, 4-81, 4-88, 4-110, 4-120, 4-141, 4-152, 5-13
- Council on Environmental Quality (CEQ), ES-8, 1-3, 1-9, 2-55, 2-69, 3-1, 4-155, 5-37, 6-6, GLOSS-3
- de minimis*, ES-11, 2-59, 2-69, 3-33, 3-61, 3-88, 3-114, 4-6, 4-35, 4-36, 4-37, 4-38, 4-68, 4-69, 4-70, 4-71, 4-98, 4-99, 4-100, 4-101, 4-129, 4-130, 4-131, 4-132, 5-9, 5-17, 5-25, 5-32
- Defense Logistics Agency (DLA), 3-51
- Disproportionate, ES-20, 2-68, 4-29, 4-61, 4-62, 4-91, 4-121, 4-122, 4-153, 4-154, 4-159, 5-15, 5-29
- Endangered, 3-44, 3-125, 4-79, 4-108, 4-139, 5-19, 5-27, 5-34, GLOSS-3, GLOSS-6
- Energy Independence and Security Act (EISA), 4-13, 4-42, 4-53, 4-75, 4-84, 4-105, 4-113, 4-136, 4-146, 5-12, 5-19, 5-27, 5-34
- Environmental Restoration Program (ERP), ES-18, ES-20, 2-66, 2-68, 3-24, 3-45, 3-51, 3-79, 3-105, 3-132, 4-26, 4-58, 4-88, 4-90, 4-118, 4-120, 4-150, 4-152, 5-29
- Federal Aviation Administration (FAA), ES-6, 1-7, 2-9, 2-57, 3-1, 3-11, 3-57, 3-66, 3-84, 3-93, 3-110, 3-119, 4-2, 4-11, 4-81, 6-7, 6-12, 6-13
- Federal Aviation Regulation (FAR), ES-6, ES-10, ES-15, ES-20, 2-57, 2-58, 2-64, 2-68, 3-1, 3-57, 3-84, 3-85, 3-86, 3-110, 3-111, 4-93, 4-94, 4-97, 4-111, 4-123, 4-124, 4-125, 4-128, 4-145, 4-156, 6-5, 6-6
- Federal Highway Administration (FHWA), 4-6, 4-34, 4-67, 4-97, 4-128, 6-8
- Federal Interagency Committee on Urban Noise (FICUN), 3-127, 4-52, 4-81
- Federal Register*, ES-1, 1-10, 1-12
- Floodplains, 3-16, 3-42, 3-72, 3-95, 3-98, 3-124, 4-15, 4-44, 4-77, 4-107, 4-138
- Green House Gas (GHG), 4-8, 4-9, 4-37, 4-38, 4-69, 4-70, 4-71, 4-99, 4-100, 4-131, 4-132, 5-2, 5-10, 5-17, 5-25, 5-32
- Groundwater, 3-14, 3-16, 3-24, 3-42, 3-51, 3-71, 3-76, 3-79, 3-98, 3-102, 3-105, 3-122, 3-129, 3-132, 4-13, 4-26, 4-44, 4-58, 4-77, 4-88, 4-107, 4-118, 4-138, 4-152, 5-4



- Hazardous Air Pollutant (HAP), ES-11, ES-20, 2-59, 2-68, 3-9, 3-35, 3-64, 3-92, 3-117, 4-9, 4-38, 4-71, 4-101, 4-132
- Integrated Noise Model (INM), 3-1, 3-57, 3-84, 3-110, 4-63, 4-92, 4-123, 4-124, 6-12, 6-13, GLOSS-4
- Lead-Based Paint (LBP), ES-19, ES-20, 2-67, 2-68, 3-23, 3-50, 3-78, 3-104, 3-131, 4-22, 4-24, 4-26, 4-54, 4-56, 4-58, 4-85, 4-87, 4-90, 4-115, 4-116, 4-120, 4-147, 4-149, 4-152, 5-6, 5-14, 5-21, 5-29, 5-36
- Leadership in Energy and Environmental Design (LEED), 2-14, 2-23, 2-31, 2-44, 2-51, 4-21, 4-53, 4-84, 4-114, 4-146, 5-6, 5-14, 5-21, 5-28, 5-35
- Low Impact Development (LID), 4-13, 4-42, 4-75, 4-105, 4-136, 5-12, 5-19, 5-26, 5-27, 5-33, 5-34
- Low-Income, ES-20, 2-68, 3-27, 3-54, 3-55, 3-56, 3-82, 3-108, 3-109, 3-135, 3-136, 4-29, 4-61, 4-62, 4-91, 4-121, 4-122, 4-153, 4-159, 5-7, 5-15, 5-21, 5-29, 5-36, 6-15, 6-16, GLOSS-3
- Migratory Bird Treaty Act (MBTA), 3-16, 3-43, 3-72, 3-99, 3-124, 4-15, 4-45, 4-78, 4-108, 4-139
- Military Operations Area (MOA), 2-11, 2-30, 2-41, 2-50, 3-121, GLOSS-4, GLOSS-6
- Minority, ES-20, 2-68, 3-27, 3-54, 3-55, 3-56, 3-82, 3-108, 3-109, 3-135, 3-136, 4-29, 4-61, 4-62, 4-91, 4-121, 4-122, 4-153, 4-159, 5-7, 5-15, 5-21, 5-29, 5-36, 6-15, GLOSS-3
- National Ambient Air Quality Standards (NAAQS), ES-11, 2-59, 3-5, 3-8, 3-31, 3-33, 3-34, 3-60, 3-63, 3-88, 3-91, 3-114, 3-117, 4-6, 4-132, GLOSS-4
- National Defense Authorization Act (NDAA), 1-3, 4-155, 5-30, 5-31, 5-33, 5-36
- National Environmental Policy Act (NEPA), ES-4, ES-7, ES-8, ES-9, 1-3, 1-9, 1-10, 1-11, 1-12, 2-2, 2-4, 2-9, 2-18, 2-28, 2-37, 2-48, 2-55, 3-1, 3-93, 4-155, 5-1, 5-8, 5-16, 5-23, 5-30, 5-37, 6-6, 7-2, 7-6, GLOSS-4
- National Pollutant Discharge Elimination System (NPDES), 3-71, 4-74, 4-104, 5-3, 5-4, 5-11, 5-12, 5-18, 5-19, 5-26, 5-27, 5-33, 5-34
- National Register of Historic Places (NRHP), ES-14, ES-20, 2-62, 2-68, 2-69, 3-17, 3-45, 3-73, 3-100, 3-126, 4-17, 4-18, 4-47, 4-48, 4-49, 4-80, 4-81, 4-109, 4-110, 4-111, 4-140, 4-141, 4-142, 4-157, 5-5, 5-13, 5-20, 5-27, 5-34
- Natural Resources Conservation Service (NRCS), 3-13, 3-39, 3-40, 3-68, 3-69, 3-95, 3-96, 3-121, 4-12, 4-41, 4-74, 4-104, 4-135, 6-11
- Night Vision Imaging System (NVIS), ES-3, 1-4, 1-6, 1-7
- NOISEMAP, 3-1, 3-2, 3-28, 4-1, 4-30, 6-8, GLOSS-5
- Notice of Availability (NOA), ES-1, 1-12
- Occupational Safety and Health Administration (OSHA), 4-24, 4-56, 4-87, 4-117, 4-149
- Operational Emissions, ES-11, 2-59, 2-69, 4-6, 4-6, 4-7, 4-35, 4-36, 4-38, 4-68, 4-69, 4-98, 4-99, 4-101, 4-129, 4-130
- Prevention of Significant Deterioration (PSD), ES-11, ES-20, 2-59, 2-68, 4-6, 4-7, 4-8, 4-9, 4-35, 4-36, 4-37, 4-38, 4-68, 4-69, 4-70, 4-71, 4-98, 4-99, 4-100, 4-101, 4-129, 4-130, 4-131, 4-132, 5-2, 5-9, 5-17, 5-25, 5-32
- Public Involvement, 1-10
- Public Scoping, ES-1
- Record of Decision (ROD), 1-12, 2-69, 2-70
- Runway Protection Zone (RPZ), 3-10, 3-11, 3-19, 3-37, 3-66, 3-74, 3-93, 3-100, 3-119, 3-127, 4-9, 4-71, 4-101, 4-132
- Satellite Accumulation Point (SAP), 3-23, 3-51, 3-78, 3-79, 3-104, 3-132
- Secretary of the Air Force, ES-1, ES-4, 1-1, 1-12, 2-4, 2-5, 2-6
- Selection Criteria, ES-4, 2-4

Special Status, ES-13, 1-13, 2-61, 3-17, 3-44, 3-73, 3-99, 3-125, 4-16, 4-46, 4-79, 4-108, 4-109, 4-139, 5-4, GLOSS-6

Special Use Airspace (SUA), ES-9, 2-55, 4-155

State Historic Preservation Office(r) (SHPO), ES-14, ES-20, 2-62, 2-68, 2-69, 3-17, 3-18, 3-45, 3-73, 3-100, 3-126, 4-17, 4-18, 4-48, 4-49, 4-80, 4-81, 4-109, 4-110, 4-141, 4-142, 5-5, 5-13, 5-20, 5-27, GLOSS-6

State Implementation Plan (SIP), ES-11, ES-20, 2-6, 2-59, 2-68, 2-69, 4-156, 5-10

Stormwater, 3-14, 3-21, 3-24, 3-42, 3-47, 3-51, 3-71, 3-76, 3-79, 3-98, 3-102, 3-104, 3-122, 3-129, 3-132, 4-13, 4-21, 4-42, 4-53, 4-75, 4-83, 4-84, 4-104, 4-105, 4-113, 4-136, 4-145, 4-146, 5-3, 5-6, 5-11, 5-12, 5-14, 5-18, 5-19, 5-21, 5-26, 5-28, 5-33, 5-35, 6-1, 6-12, 6-14

Stratotanker, ES-1, 1-3, 1-6

Threatened, 3-44, 3-99, 4-79, 4-108, 4-139, 5-19, 5-27, 5-34, GLOSS-6

United States Army Corps of Engineers (USACE), 3-42

United States Department of Agriculture (USDA), 3-13, 3-39, 3-67, 3-68, 3-95, 3-121, 6-5, 6-16

United States Environmental Protection Agency (USEPA), 3-6, 3-7, 3-8, 3-9, 3-14, 3-23, 3-32, 3-33, 3-34, 3-35, 3-40, 3-42, 3-51, 3-61, 3-62, 3-63, 3-64, 3-69, 3-71, 3-78, 3-88, 3-89, 3-90, 3-91, 3-98, 3-104, 3-114, 3-115, 3-116, 3-117, 3-121, 3-122, 3-131, 4-22, 4-54, 4-74, 4-84, 4-114, 4-146, 6-16

United States Fish and Wildlife Service (USFWS), 3-17, 3-74, 3-125, 6-17, GLOSS-6

United States Geological Survey (USGS), 3-42, 3-71, 3-98, 3-122, 6-17

Wetland, ES-13, 2-61, 3-17, 3-43, 3-44, 3-73, 3-74, 3-99, 3-125, 4-16, 4-46, 4-47, 4-79, 4-108, 4-109, 4-140, 5-4, 5-12, 5-19, 5-27, 5-34, 6-11, 6-17, GLOSS-7

Wildlife, ES-13, 2-61, 3-11, 3-12, 3-16, 3-38, 3-43, 3-67, 3-72, 3-94, 3-99, 3-120, 3-124, 4-11, 4-15, 4-16, 4-45, 4-47, 4-78, 4-79, 4-108, 4-109, 4-139, 4-140, 5-4, 5-12, 5-19, 5-27, 5-34, GLOSS-2, GLOSS-3, GLOSS-6

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## **LIST OF REPOSITORIES**

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Topeka and Shawnee County Public Library  
1515 SW 10th St  
Topeka, KS 66604

Carbondale City Library  
235 Main St  
Carbondale, KS 66414

Burlington County Library  
5 Pioneer Blvd  
Westampton, NJ 08060

Pemberton Community Library  
16 Broadway  
Browns Mills, NJ 08015  
609-893-8262

Mr. Scott Campbell  
Langdon Public Library  
328 Nimble Hill Rd  
Newington, NH 03801

Mr. Michael Huxtable  
Portsmouth Public Library  
175 Parrott Ave  
Portsmouth, NH 03801

Moon Township Public Library  
1700 Beaver Grade Rd  
Moon Township, PA 15108

Robert Morris University Library  
6001 University Blvd  
Moon Township, PA 15108

Metropolitan Library  
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3540 S. High Street  
Columbus, OH 43207

Metropolitan Library  
Southeast Branch  
3980 S Hamilton Rd  
Groveport, OH 43125

## GLOSSARY

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***Above Ground Level (AGL):*** Altitude expressed in feet measured above the ground surface.

***Accident Potential Zone (APZ):*** An area defined near a runway where accidents are likely to occur if they occur. APZs are normally 3,000 feet wide and extend 15,000 feet from the end of the runway but can curve with the flight tracks.

***Air Refueling Tracks:*** Published linear routes identified on air navigation charts that define the flight path used by aircraft when refueling other aircraft. For fixed wing aircraft, this generally occurs above 10,000 feet above mean sea level.

***Air Force Instruction (AFI):*** AFIs implementing United States laws and regulations, and providing policy for United States Air Force personnel and activities.

***Air Installation Compatible Use Zone (AICUZ):*** A land-use-planning program, used by the military, to protect the health, safety, and welfare of those living near military airfields while preserving the defense flying mission. AICUZ presents noise zones and Accident Potential Zones for military airfields and recommendations for compatible land use.

***Air Mobility Command (AMC):*** AMC, a major command with headquarters at Scott Air Force Base, Illinois, was created June 1, 1992. AMC provides America's Global Reach. This rapid, flexible, and responsive air mobility promotes stability in regions by keeping America's capability and character highly visible.

***Air National Guard (ANG):*** The ANG is administered by the National Guard Bureau, a joint bureau of the departments of the Army and United States Air Force, located in the Pentagon, Washington, D.C. It is one of the seven Reserve components of the United States armed forces that augments the active components in the performance of their missions.

***Air Quality Control Region (AQCR):*** An administrative unit for monitoring and controlling air quality in a specific region.

***Air Traffic Control Assigned Airspace (ATCAA):*** Airspace of defined vertical and lateral limits, assigned by Air Traffic Control, for the purpose of providing air traffic separation between the specified activities being conducted within the assigned airspace and other Instrument Flight Rule air traffic.

***Anchors:*** Air refueling tracks that go in a race-track shape (i.e., loop).

**AP/1B:** AP/1B provides textual and graphic descriptions and operating instructions for all military training routes (instrument route, visual route, slow route) and refueling tracks/anchors. Complete and more comprehensive information relative to policy and procedures for instrument routes and visual routes is published in Federal Aviation Administration Handbook 7610.4 (Special Military Operation) which is agreed to by the Department of Defense and therefore directive for all military flight operations. AP/1B is the official source of route data for military users.

**Area-Wide Emission Sources:** Area-wide sources of pollution are those where the emissions are spread over a wide area, such as consumer products, fireplaces, road dust, and farming operations.

**Average Annual Flying Day:** Average Annual Flying Day represents the average number of aircraft operations flown on a typical flying day based on airport activity and operational data which indicates, on an annual average-daily basis, the number of aircraft, by type of aircraft. An average annual day is a user-defined best representation of the typical long-term average conditions for an airport (typically based on 365 flying days per year). The average conditions include the number and type of operations, routing structure, runway configuration, aircraft weight, temperature and wind.

**Average Sortie Duration (ASD):** A flying wing's total number of flying hours divided by the number of sorties that must be flown.

**Backup Aerospace Vehicle Inventory (BAI):** BAI includes aircraft used as substitutes for Primary Aerospace Vehicles Authorized undergoing maintenance or otherwise unable to fly.

**Beddown:** The permanent basing of aircraft at a new installation.

**Bird/Wildlife-Aircraft Strike Hazard (BASH):** A United States Air Force program to reduce the possibilities of bird or wildlife collisions with aircraft.

**Boom/Probe and Drogue Refueling:** Probe and drogue refueling employs a flexible hose that trails from the tanker aircraft. The drogue is a fitting resembling a windsock, and is attached with a valve to a flexible hose.

**Clean Air Act (CAA):** This Act empowered the United States Environmental Protection Agency to establish standards for common pollutants that represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect public health and safety.



***Council on Environmental Quality (CEQ):*** The Council is within the Executive Office of the President and is composed of three members appointed by the President, subject to approval by the Senate. Members are to be conscious of and responsive to the scientific, economic, social, esthetic, and cultural needs of the nation; and to formulate and recommend national policies to promote the improvement of quality of the environment.

***Day-Night Average Sound Level (DNL):*** Day-Night Average Sound Level is a noise metric combining the levels and durations of noise events and the number of events over an extended time period. It is a cumulative average computed over a 24-hour period to represent total noise exposure. DNL also accounts for more intrusive nighttime noise, adding a 10 decibel penalty for sounds after 10:00 p.m. and before 7:00 a.m. DNL is the Federal Aviation Administration's primary noise metric. Federal Aviation Administration Order 1050.1E defines DNL as the yearly day/night average sound level.

***Decibel (dB):*** A sound measurement unit.

***De Minimis Threshold:*** The minimum threshold for which a conformity determination must be performed, for various criteria pollutants in various areas.

***Endangered Species Act (ESA):*** The Endangered Species Act of 1973 defined the term "endangered species" to mean any species (including any subspecies of fish or wildlife or plants, and any distinct population segment of any species or vertebrate fish or wildlife which interbreeds when mature) that is in danger of extinction throughout all or a significant portion of its range.

***Environmental Justice:*** Pursuant to Executive Order 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, review must be made as to whether a federal program, policy, or action presents a disproportionately high and adverse human health or environmental effect on minority and/or low-income populations.

***Environmental Night:*** The period between 10 p.m. and 7 a.m. when 10 decibels is added to aircraft noise levels due to increased sensitivity to noise at night.

***Flight Level (FL):*** A level of constant atmospheric pressure related to a reference datum of 29.92 inches of mercury. Each is stated in three digits that represent hundreds of feet. For example, FL 250 represents a barometric altimeter indication of 25,000 feet; FL 255, an indication of 25,500 feet.

***Instrument Flight Rule (IFR):*** A standard set of rules that all pilots, civilian and military, must follow when operating under flight conditions that are more stringent than Visual Flight Rule. These conditions include operating an aircraft in reduced visibility, operating above certain

altitudes prescribed by Federal Aviation Administration regulations, and operating in some locations like major civilian airports. Air traffic control agencies ensure separation of all aircraft operating under IFR.

***Integrated Noise Model (INM):*** The INM is the preferred model typically used for Federal Aviation Regulations Part 150 noise compatibility planning and for Federal Aviation Administration Order 1050 environmental assessments and environmental impact statements. INM is a computer model that evaluates aircraft noise impacts in the vicinity of airports. It is developed based on the algorithm and framework from SAE AIR 1845 standard, which used Noise-Power-Distance data to estimate noise accounting for specific operation mode, thrust setting, and source-receiver geometry, acoustic directivity and other environmental factors. The INM can output either noise contours for an area or noise level at pre-selected locations. The noise output can be either exposure-based, maximum-level-based, or time-based.

***Loess:*** An unstratified, usually buff to yellowish brown, loamy deposit believed to be chiefly deposited by the wind.

***Main Operating Base:*** A permanently manned, well-protected base with robust infrastructure. Main operating bases are characterized by command and control structures, enduring family support facilities, and strengthened force protection measures.

***Mean Sea Level (MSL):*** Altitude or elevation expressed in feet referenced to the average elevation of the sea. For example, a field elevation of 26 feet above mean sea level would be expressed as “26 feet MSL” and an aircraft altitude of 1,200 feet above mean sea level would be expressed as “1,200 feet MSL.”

***Military Operations Area (MOA):*** A MOA is airspace designated outside of Class A airspace (i.e., below 18,000 feet mean sea level) to separate or segregate certain non-hazardous military activities from Instrument Flight Rule (IFR) traffic and to identify for Visual Flight Rule (VFR) traffic where these activities are conducted.

***Mobile Sources:*** Mobile sources include cars and light trucks, heavy trucks and buses, nonroad engines, equipment, and vehicles.

***National Ambient Air Quality Standards (NAAQS):*** NAAQS are established by the United States Environmental Protection Agency for criteria pollutants that represent the maximum levels of background pollution that are considered safe, with an adequate margin of safety, to protect public health and safety.

***National Environmental Policy Act (NEPA):*** The National Environmental Policy Act of 1969 directs federal agencies to take environmental factors into consideration in their decisions.

***National Guard Bureau (NGB):*** The NGB, both a staff and operating agency, administers the federal functions of the Army and the Air National Guard. As a staff agency, the National Guard Bureau participates with the Army and Air staffs in developing and coordinating programs that directly affect the National Guard. As an operating agency, the National Guard Bureau formulates and administers the programs for training, development, and maintenance of the Army National Guard and Air National Guard and acts as the channel of communication between the Army, Air Force, and the 54 states and territories where National Guard units are located.

***National Historic Preservation Act (NHPA):*** The NHPA of 1966, as amended, established a program for the preservation of historic properties throughout the United States.

***Nautical Mile:*** A distance unit equal to 1.14 statute miles.

***NOISEMAP:*** *NOISEMAP* is a group of computer programs developed over a number of years by the U.S. Air Force for prediction of noise exposures in the vicinity of a military installation. *NOISEMAP* is the primary computer model used by Department of Defense for evaluating military fixed-wing aircraft noise. It contains a suite of computer programs for prediction of noise exposure from aircraft flight, maintenance, and ground runup operations. *NOISEMAP* output includes noise contours, noise levels at preselected locations, and other supplemental metrics to assist users in analyzing impacts resulting from aircraft noise in the airfield environment.

***Operation:*** An operation can apply to both airfield and airspace activities. At an airfield, an operation consists of a single action such as a take-off, or a landing (i.e., two operations). For airspace and ranges, an operation consists of the use of one airspace unit (e.g., Military Operations Area, Air Refueling Track) by one aircraft. Each time a single aircraft flies into a different airspace unit, one operation is counted. During a single sortie, an aircraft could fly in several airspace units, and conduct a number of operations; therefore, the number of operations exceeds the number of sorties.

***Prime Farmland:*** Prime farmlands are designations assigned by the U.S. Department of Agriculture. Prime farmland is land that has the best combination of physical and chemical characteristics for producing food, feed, forage, fiber, and oilseed crops. The land is also used as cropland, pastureland, rangeland, forest land, or other land, but cannot be used as urban built-up land or water.

***Power Setting:*** The power or thrust output of an engine in terms of kilonewtons thrust for turbojet and turbofan engines or shaft power in terms of kilowatts for turboprop engines.

**Primary Aerospace Vehicles Authorized (PAA):** PAA consists of the aircraft authorized and assigned to perform an Air National Guard wing's missions.

**Scoping:** A process of identifying the main issues of concern at an early stage in planning, in order to discover any alternatives and aid in site selection.

**Sortie:** A sortie refers to a single military aircraft from take-off through final landing, and everything that might be conducted during that flying mission. A sortie will always include more than one operation.

**Sortie Operation:** A sortie operation is counted each time a single aircraft enters Special Activity Airspace such as an Air Refueling Route or Military Operations Area (MOA).

**Sound Exposure Level (SEL):** SEL accounts for both the maximum sound level and the length of time a sound lasts. It provides a measure of the total sound exposure for an entire event. Federal Aviation Administration Order 1050.1E defines SEL as a single event metric that takes into account both the noise level and duration of the event and referenced to a standard duration of one second.

**Special Status Species:** *Special Status Species* are defined as those plant and animal species listed as endangered, threatened, and species proposed for listing by the United States Fish and Wildlife Service (USFWS) under the Endangered Species Act (ESA), and by state agencies. The federal ESA protects federally listed endangered and threatened plant and animal species. Critical habitat is a term defined and used in the ESA. It is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Federally identified candidate species (species proposed for listing) are not protected under law; however, these species could become listed, and therefore, protected at any time. Their consideration early in the planning process may avoid future conflicts that could otherwise occur. Additionally, the corresponding state regulatory agencies (Kansas Department of Wildlife, Parks and Tourism; New Jersey Division of Fish and Wildlife; New Hampshire Fish and Game; Pennsylvania Department of Conservation and Natural Resources; and Ohio Department of Natural Resources) protect state-listed plant and animal species through State fish and wildlife and administrative codes.

**State Historic Preservation Office (SHPO):** State department responsible for assigning protected status for cultural and historic resources.

**Stationary Sources:** A place or object from which pollutants are released and which does not move around. Stationary sources include power plants, gas stations, incinerators, houses, etc.

***Traditional/Cultural Resource:*** Cultural and traditional resources are any prehistoric or historic district, site or building, structure, or object considered important to a culture, subculture, or community for scientific, traditional, religious, or other purposes.

***Visual Flight Rule (VFR):*** A standard set of rules that all pilots, both civilian and military, must follow when not operating under Instrument Flight Rule. These rules require that pilots remain clear of clouds and avoid other aircraft. See Instrument Flight Rule.

***Warning Areas:*** A warning area is airspace of defined dimensions, extending from 3 nautical miles outward from the coast of the United States, containing activity that may be hazardous to non-participating aircraft. The purpose of such areas is to warn non-participating pilots of the potential danger. A warning area may be located over domestic or international waters or both. A warning area may be located over domestic or international waters or both. The airspace is designated with a “W” followed by a number (e.g., W-237).

***Wetland, Jurisdictional:*** A jurisdictional wetland is a wetland that meets all three United States Army Corps of Engineers’ criterion for jurisdictional status: appropriate hydrologic regime, hydric soils, and facultative to obligate wetland plant communities under normal growing conditions.

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## **Appendix A**

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# ***Resource Definitions and Methodologies***





## **APPENDIX A RESOURCE DEFINITIONS AND METHODOLOGIES**

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This appendix provides a definition of each resource described in Chapter 3 and analyzed in Chapter 4 that would be affected by implementation of the various alternatives described in Chapter 2. This appendix also provides a description of the methodologies used in Chapter 4 to analyze the various potential impacts to those resources presented in Chapter 3.

The affected environment is described for 11 resource topics: Noise, Air Quality, Safety, Soils and Water, Biological Resources, Cultural Resources, Land Use, Infrastructure and Transportation, Hazardous Materials and Waste, Socioeconomics, and Environmental Justice and the Protection of Children. The following sections for each resource topic begin with an introduction that defines the resources addressed in the section, summarizes applicable laws and regulations that apply to all installations, defines key terms as necessary, and describes the general region of influence (ROI) within which the effects from implementation of the various alternatives are anticipated to occur. The ROI varies from resource to resource, but in general, effects from the proposed activities are expected to be concentrated around each of the alternative installations. A more specific ROI for each installation/resource is described within Chapter 3, as are any local/regional regulations.

The methodology used in Chapter 4 to analyze potential impacts for each resource follows the definition of the resource sections in this appendix. In general, throughout this EIS, the levels of significance of impacts are classified as major, moderate, minor, negligible or “no impact.” An impact is considered major if it would result in a substantial adverse change to the environment. An impact is considered moderate or minor if it would not result in substantial adverse environmental effects but could still have some effect. The determination of whether an impact is moderate or minor is described within each resource category. In contrast to “no impact,” a negligible impact could occur but at the lowest limits of detection of an effect. In cases where no impact would occur, this conclusion is noted. Quantitative thresholds are applied, where appropriate, to determine the level of significance (for example, quantitative thresholds are commonly used to determine impact levels in the areas of noise and air quality). Other issues are assessed qualitatively based on context and intensity.

### **A.1 NOISE**

#### **A.1.1 Definition of the Resource**

Noise is considered to be unwanted sound that interferes with normal activities or otherwise diminishes the quality of the environment. It may be intermittent or continuous, steady or

impulsive, stationary or transient. Stationary sources are normally related to specific land uses (e.g., housing tracts or industrial plants). Transient noise sources move through the environment, either along relatively established paths (e.g., highways, railroads, and aircraft flight tracks around airports) or randomly. There is wide diversity in responses to noise that not only vary according to the type of noise and the characteristics of the sound source, but also according to the sensitivity and expectations of the receptor, the time of day, and the distance between the noise source (e.g., an aircraft) and the receptor (e.g., a person or animal). The duration of a noise event, and the number of times noise events occur, are also important considerations in assessing noise impacts.

As a basis for comparison when noise levels are considered, it is useful to note that at distances of about 3 feet, typical kitchen appliances range from about 83 to 88 decibels (dB), rock bands approach 110 dB, and normal conversation from about 3 feet would be approximately 60 dB. Figure C-2 in Appendix C depicts typical A-weighted sound pressure levels for various common sources.

#### A.1.1.1 Noise Metrics

To assess noise impacts in the vicinity of each installation, the United States Air Force (USAF) has used both a cumulative metric, known as the Day-Night Average Sound Level (DNL), and a single event metric, known as the Sound Exposure Level (SEL). DNL is used to analyze a community's exposure to noise while SEL is useful in describing what an individual might experience on the ground as an aircraft passes by and to assess potential for sleep disturbance and interference with activities. SEL is used to assess the potential impacts of noise on structures and animals. Appendix C provides more detailed information regarding noise and the analysis of impacts from changes to the noise environment.

The frequency, sound level, and duration of aircraft overflight noise events depend on variables including aircraft type and model (engine type), aircraft configuration (i.e., flaps, landing gear, etc.), engine power setting, aircraft speed, distance between the observer and the aircraft flight track, temperature, humidity, and altitude. Therefore, extensive noise data are collected for various types of aircraft/engines at different power settings and phases of flight. This database of aircraft noise provides a basis for calculation of average individual-event sound descriptors for specific aircraft operations at any location under varying meteorological conditions. The reference values are adjusted to any location by applying appropriate corrections for the variables.

### *Averaged Noise Metrics*

DNL is a composite metric that accounts for all noise events in a 24-hour period. In order to account for increased human sensitivity to noise at night, a 10 dB penalty is applied to nighttime events (10 p.m. to 7 a.m.). This “noise penalty” is an effort to account for increased human sensitivity to late night noise events. The summation of sound during a 24-hour period does not ignore the louder single events; it actually tends to emphasize both the sound level and number of those events. The logarithmic nature of the dB unit causes sound levels of the loudest events to control the 24-hour average.

DNL is the accepted unit for quantifying annoyance to humans from general environmental noise, including aircraft noise. The Federal Interagency Committee on Urban Noise (FICUN) developed land use compatibility guidelines for noise exposure areas (FICUN 1980). Based upon these FICUN guidelines, the Federal Aviation Administration (FAA) developed recommended land uses in aircraft noise exposure areas. The USAF and FAA use DNL as the method to estimate the amount of exposure to aircraft noise and predict impacts. Land use compatibility and incompatibility are determined by comparing the predicted DNL at a site with the recommended land uses (Appendix C).

#### A.1.1.2 Noise Modeling

There are a variety of tools available to model noise at and around airfields. NOISEMAP is a computer program used to model noise exposure in the vicinity of military airfields due to aircraft flights and engine run-up activities. Noise contours generated by NOISEMAP are used in support of the USAF Air Installation Compatible Use Zone (AICUZ) program and National Environmental Policy Act (NEPA) documentation, such as this Environmental Impact Statement (EIS). The model generates noise contours based on numerous input data that are used to evaluate noise in the vicinity of airfields where military activity occurs. Part 150 of the Federal Aviation Regulations (FAR), *Airport Noise Compatibility Planning*, sets forth standards for airport operators to use in documenting noise exposure in the civilian airport environs and establishing programs to minimize noise-related land use incompatibilities. The FAA uses the Integrated Noise Model (INM), a computer model that evaluates aircraft noise impacts in the vicinity of commercial airports.

#### A.1.1.3 Potential Hearing Loss

Noise-related hearing loss risk has been studied extensively. Findings of studies and resulting policies and regulations are discussed briefly below and in more detail in Appendix C. As per Department of Defense (DoD) policy memorandum (2009), populations exposed to noise greater than 80 dB DNL were identified as being at the most risk for potential hearing loss (Undersecretary of Defense for Acquisition Technology and Logistics 2009). The DoD policy

directs that hearing loss risk should be assessed using the methodology described in United States Environmental Protection Agency (USEPA) Report No. 550/9-82-105, *Guidelines for Noise Impact Analysis* (USEPA 1982). USEPA's *Guidelines for Noise Impact Analysis* quantify hearing loss risk in terms of Noise-Induced Permanent Threshold Shift (NIPTS), a quantity that defines the permanent change in the threshold level below which a sound cannot be heard. NIPTS is stated in terms of the average threshold shift at several frequencies that can be expected from daily exposure to noise over a normal working lifetime of 40 years, with exposure lasting 8 hours per day for 5 days per week.

The actual value of NIPTS for any given person depends on that individual's physical sensitivity to noise. Over a 40-year working lifetime, some people will experience more loss of hearing than others. The actual noise exposure for any person living in an area subject to 80 dB DNL or greater is determined by the length of time that a person is outdoors and directly exposed to the noise. For example, noise exposure within an 80 dB DNL noise contour near an airfield would be affected by whether a person was at home during the daytime hours when most flying occurs. Many people would be inside their homes and would, therefore, be exposed to lower noise levels due to noise attenuation provided by the house structure.

### *Workplace Noise*

In 1972, the National Institute for Occupational Safety and Health (NIOSH) published a criteria document with a recommended exposure limit of 85 dB as an 8-hour time-weighted average. This exposure limit was reevaluated in 1998 when NIOSH made recommendations that went beyond conserving hearing by focusing on the prevention of occupational hearing loss (NIOSH 1998). Following the reevaluation using a new risk assessment technique, NIOSH published another criteria document in 1998 that reaffirmed the 85 dB recommended exposure limit (NIOSH 1998). Active-duty and reserve components of the USAF (including the Air National Guard [ANG]), as well as civilian employees and contracted personnel working on USAF bases and ANG installations must comply with Occupational Safety and Health Administration (OSHA) regulations (29 Code of Federal Regulations [CFR] § 1910.95 *Occupational Noise Exposure*), DoD Instruction 6055.12, *Hearing Conservation Program*; Air Force Occupational Safety and Health (AFOSH) Standard 48-20 (June 2006), and *Occupational Noise and Hearing Conservation Program* (including material derived from the International Standards Organization 1999.2 *Acoustics-Determination of Occupational Noise Exposure and Estimation of Noise Induced Impairment*). Per AFOSH Standard 48-20, the Hearing Conservation Program is designed to protect workers from the harmful effects of hazardous noise by identifying all areas where workers are exposed to hazardous noise. The following are the primary components of the program:

1. Identify noise hazardous areas or sources and ensure these areas are clearly marked.

2. Use engineering controls as the primary means of eliminating personnel exposure to potentially hazardous noise. All practical design approaches to reduce noise levels to below hazardous levels by engineering principles shall be explored. Priorities for noise control resources shall be assigned based on the applicable risk assessment code. Where engineering controls are undertaken, the design objective shall be to reduce steady-state levels to below 85 dB, regardless of personnel exposure time, and to reduce impulse noise levels to below 140 dB peak sound pressure level.
3. Ensure workers with an occupational exposure to hazardous noise complete an initial/reference audiogram within 30 days from the date of the workers' initial exposure to hazardous noise.
4. Ensure new equipment being considered for purchase has the lowest sound emission levels that are technologically and economically possible and compatible with performance and environmental requirements. 42 United States Code (USC) Section 4914, *Public Health and Welfare, Noise Control, Development of Low-Noise Emission Products*, applies.
5. Education and training regarding potentially noise hazardous areas and sources, use and care of hearing protective devices, the effects of noise on hearing, and the Hearing Conservation Program.

### **A.1.2 Methodology**

#### **A.1.2.1 Aircraft Noise**

Noise associated with flying operations and construction activities related to the Proposed Action are considered and compared with baseline conditions to assess potential impacts. Data developed during this process also supports analyses in the biological, cultural, land use, and environmental justice and the protection of children resource areas. When analyzing noise effects on humans, public annoyance is the most common impact associated with exposure to elevated noise levels, and the DNL noise metric has been strongly correlated to public annoyance. When subjected to a DNL of 65 dB, approximately 12 percent of the persons exposed would be expected to be “highly annoyed” by the noise (Finegold *et al.* 1994). At levels below 60 dB DNL, the percentage of annoyance is substantially lower (less than 8 percent), and at levels above 70 dB DNL it is substantially higher (approximately 25 percent) (Table A.1.2-1). A 75 dB DNL is also the threshold above which effects other than annoyance may occur (Committee on Hearing, Bioacoustics, and Biomechanics 1977). According to USAF land use guidelines, 65 dB DNL is the highest aircraft noise level that is normally compatible with residential uses (FICUN 1980). Even with special noise attenuation measures installed, residential developments are never considered to be compatible with a DNL of 75 dB or higher.

**Table A.1.2-1. Theoretical Percentage of Population Highly Annoyed by Noise Exposure**

<i>DNL Intervals in dB</i>	<i>Percentage of Persons Highly Annoyed</i>
<65	<12
65-70	12-22
70-75	22-37
75-80	37-54
>80	>61

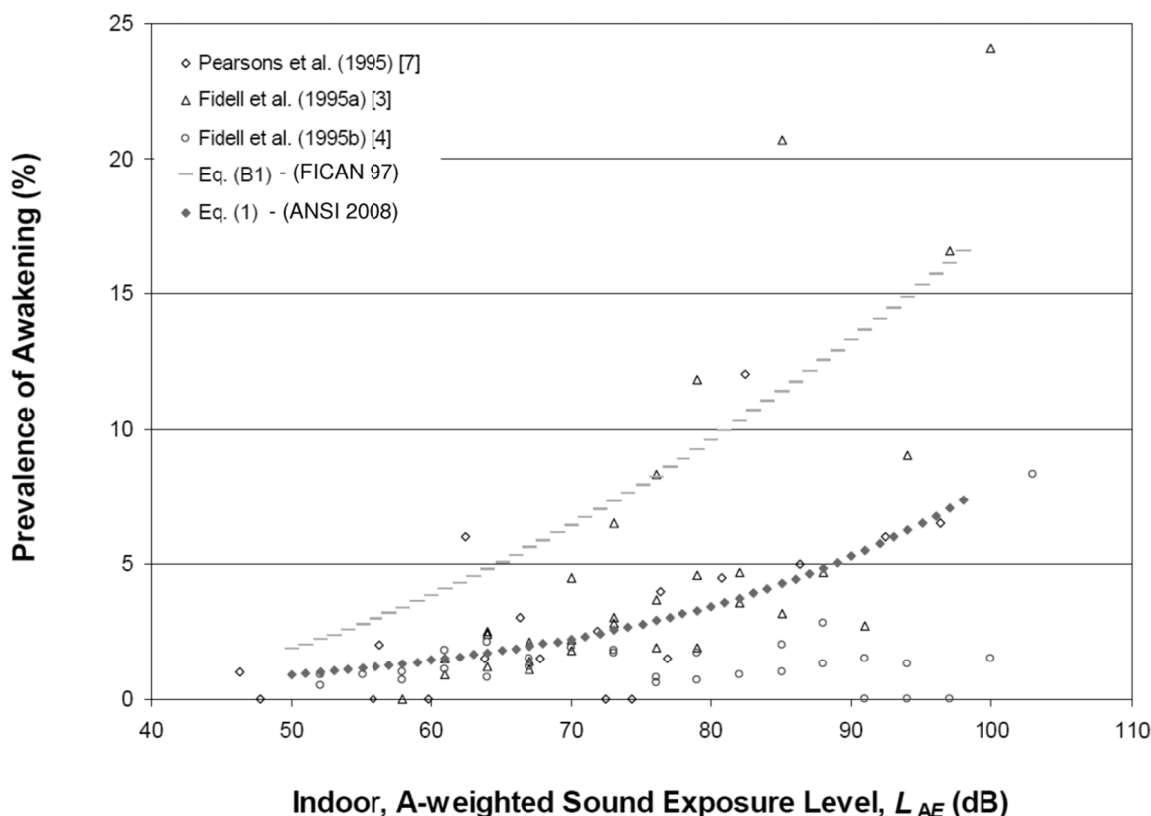
*Note:* Noise impacts to individuals vary as do individual reaction to noise. This is a general prediction of the percent community highly annoyed based on environmental noise surveys conducted around the world.

dB = decibel; DNL = Day-Night Average Sound Level

*Source:* Finegold *et al.* 1994.

Sleep disturbance is often considered an adverse reaction from aircraft operations in the vicinity of an airport. While there are currently no established criteria for evaluating sleep disturbance from aircraft overflights, recent studies suggest setting the threshold of outdoor SEL of 90 dB, an indoor SEL of 65 dB (25 dB lower) when windows are closed, and an indoor SEL of 75 dB (15 dB lower) when windows are open (DNWG 2009). Figure A.1.2-1 depicts the prevalence of awakening based on indoor SELs. This analysis is based on the change in aircraft operations resulting from the conversion of the KC-135 to the KC-46A. The total number of operations flown by all other aircraft would not change and sleep disturbance from those activities would remain as they are today. Based on the minor changes to the noise environment, sleep disturbance was dismissed from detailed analysis.





Source: ANSI S12.9-2008 Plot of Sleep Awakening Data versus indoor SEL

**Figure A.1.2-1. Prevalence of Awakening**

Speech Interference is a primary cause for annoyance and often leads to disruption of routine activities such as listening to the radio or television, using a telephone or having conversations. The quality of speech communication is also linked to disruption of classrooms and the potential for adverse effects on children's learning ability. Those areas where speech interference occurs from current KC-135 aircraft operations would be expected to continue with the beddown of the KC-46A. This analysis is based on the change in aircraft operations resulting from the conversion of the KC-135 to the KC-46AA. The total number of operations flown by all other aircraft would not change and speech interference from those activities would remain as they are today. Based on the minor changes to the noise environment, speech disturbance was dismissed from detailed analysis.

For the purposes of this EIS, the significance of potential noise impacts is based on the noise sensitivity in areas affected by substantially increased noise levels under the Proposed Action. Generally, noise impacts could be considered significant if they would:

- increase in DNL by greater than 1.5 dB at one or more noise sensitive locations (e.g., residential areas) within the 65 dB DNL noise contour;

- newly expose noise-sensitive land uses, such as residential areas, to noise levels at which they are not considered to be compatible without sound attenuation (at or above 65 dB DNL), according to federal land use guidelines; and
- increase noise levels at any facility to a point at which current functions could not be carried out efficiently.

Actual noise measurements for the KC-46A have not been obtained. Therefore, the USAF developed a set of noise data that can be used as a substitute for the KC-46A until such time as actual noise data becomes available. This data is not available in the INM program; therefore, the B767-300 was used as a substitute aircraft at civilian airports. Based on this substitute data, on a one-to-one basis, the KC-46A is slightly quieter than both the KC-135 and B767-300 (Table A.1.2-2).

**Table A.1.2-2. Aircraft Noise Level Comparison**

Aircraft	Power Setting	SEL (dB) AT OVERFLIGHT ALTITUDE IN FEET			
		1,000 feet	2,000 feet	5,000 feet	10,000 feet
Landing					
KC-46A	60% N1	85	79	70	61
KC-135	65% NF	90	84	75	67
B767-300	12,000 lbs	89	83	76	67
Takeoff					
KC-46A	92% N1	96	88	78	69
KC-135	90% NF	95	91	81	73
B767-300	33,000 lbs	95	90	80	74

*Notes:* Power Setting nomenclature is based on the instruments available in each aircraft.

Power Unit: lbs = Pounds of Thrust; NF = Engine Fan; N1 = Engine Speed

Standard Atmospheric Data, airspeeds normalized to 160 knots indicated airspeed.

*Sources:* NOISEMAP 7 Omega 10 Results; INM 2007.

Baseline and proposed noise contours were developed using the noise model that was used to generate the most current noise contour for each installation. For Joint Base McGuire-Dix-Lakehurst (JB MDL) and Forbes Air National Guard Station (ANGS), noise modeling was completed using the NOISEMAP program, and for Pease ANGS, Pittsburgh ANGS, and Rickenbacker ANGS, the FAA's INM model was used. Where NOISEMAP was used, the USAF-developed KC-46A substitute noise data was used. At airports where INM was used, the KC-46A was modeled using the B767-300 as the substitute aircraft. The KC-46A is a militarized version of the B767-300 with both aircraft powered by two Pratt and Whitney PW4062 turbofan engines. Information specific to each location is presented in Chapter 3 of each alternative.

There are a variety of data that are input into the NOISEMAP and INM computer programs to develop noise contours, and include such variables as: physical description of the airport, number and mix of aircraft operations, aircraft configurations (engine power, airspeed, altitude), day-night split of operations (by aircraft type), runway utilization rates, prototypical flight track

descriptions, and flight track utilization rates. This information by type of aircraft/engine and meteorological variables are assembled and processed for input into either the NOISEMAP or INM programs. Contours are generated as 5 dB intervals beginning at 65 dB DNL. DNL less than 65 dB are considered unconditionally compatible with residential land use (see Table A.1.7-1). While there is no technical reason why a at or above a DNL 65 dB cannot be measured or calculated for comparison purposes, this DNL provides a valid basis for comparing and assessing community noise effects, and when in the airport vicinity, represents a noise exposure level that is normally dominated by aircraft noise rather than other community or nearby highway noise sources.

#### **A.1.2.2 Construction Noise**

Construction noise is generated by the use of heavy equipment on job sites and is short-term in duration (i.e., the duration of the construction period). Typical noise levels from heavy equipment range from 69 to 84 dB at 100 feet from the source (FHA 2006). Noise from construction would be temporary and construction projects would be undertaken adjacent to the flightline away from any off-base communities. Construction noise would be expected to be contained within base environs and therefore has not been carried forward for detailed analysis in this EIS.

### **A.2 AIR QUALITY**

#### **A.2.1 Definition of Resource**

Ambient air quality refers to the atmospheric concentration of a specific compound that occurs at a particular geographic location. The ambient air quality levels measured at a particular location are determined by the interactions of emissions, meteorology, and chemistry. When discussing air quality, it is important to consider the types, amounts, and locations of pollutants emitted into the atmosphere. Meteorological factors that affect air quality include wind and precipitation patterns that can affect the distribution, dilution, and removal of pollutant emissions from the atmosphere. Furthermore, chemical reactions in the atmosphere can transform pollutant emissions into other chemical substances. Ambient air quality data are generally reported as a mass per unit volume (e.g., micrograms per cubic meter [ $\mu\text{g}/\text{m}^3$ ] of air) or as a volume fraction (e.g., parts per million [ppm] by volume).

Air quality is defined by ambient air concentrations of specific pollutants determined by the USEPA to be of concern with respect to the health and welfare of the general public. Pollutant emissions typically refer to the amount of pollutants or pollutant precursors introduced into the atmosphere by a source or group of sources. Pollutant emissions contribute to the ambient air concentrations of criteria pollutants, either by directly affecting the pollutant concentrations

measured in the ambient air or by interacting in the atmosphere to form criteria pollutants. Primary pollutants, such as carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), lead (Pb), and some particulates, are emitted directly into the atmosphere from emission sources.

Secondary pollutants, such as ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), and some particulates, are formed through atmospheric chemical reactions that are influenced by meteorology, ultraviolet light, and other atmospheric processes. Suspended particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>) and particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>) are generated as primary pollutants by various mechanical processes (for example, abrasion, erosion, mixing, or atomization) or combustion processes. However, PM<sub>10</sub> and PM<sub>2.5</sub> can also be formed as secondary pollutants through chemical reactions or by gaseous pollutants that condense into fine aerosols. In general, emissions that are considered “precursors” to secondary pollutants in the atmosphere (such as volatile organic compounds [VOCs] and oxides of nitrogen [NO<sub>x</sub>], which are considered precursors for O<sub>3</sub>) are the pollutants for which emissions are evaluated to control the level of O<sub>3</sub> in the ambient air.

The ROI for this discussion can vary according to pollutant. For pollutants that do not undergo a chemical reaction after being emitted from a source (i.e., direct emissions), the ROI is generally restricted to a region in the immediate vicinity of the installation. These pollutants include CO, SO<sub>2</sub>, and directly-emitted PM<sub>10</sub> and PM<sub>2.5</sub>. For pollutants that undergo chemical reactions and interact within the atmosphere to form secondary pollutants, such as O<sub>3</sub> and its precursors NO<sub>x</sub> and VOCs, and precursors of PM<sub>10</sub> and PM<sub>2.5</sub>, the ROI is a larger regional area. The chemical transformations and interactions that create O<sub>3</sub> and secondary PM<sub>10</sub> and PM<sub>2.5</sub> can take hours to occur; therefore, the precursor pollutants may be emitted some distance from the impact area depending on weather conditions.

Mixing height is another factor used in defining the ROI for various pollutants. The mixing height is the upper vertical limit of the volume of air in which emissions may affect air quality. Emissions released *above* the mixing height are typically restricted from affecting ground level ambient air quality in the region, while emissions of pollutants released *below* the mixing height may affect ground level concentrations. The portion of the atmosphere that is completely mixed begins at ground level and may extend up to heights of a few thousand feet. Mixing height varies from region to region based on daily temperature changes, amount of sunlight, and other climatic factors. The USEPA has defined a default mixing height as 3,000 feet above ground level (AGL); however, a more refined mixing height may be used based on regional parameters. The specific ROI for each installation is discussed under each alternative location section.

## **A.2.2 Regulatory Setting**

### **A.2.2.1 National Ambient Air Quality Standards**

As part of the Clean Air Act (CAA), the USEPA has established criteria for seven major pollutants of concern, called “criteria pollutants.” These criteria pollutants include CO, SO<sub>2</sub>, NO<sub>2</sub>, O<sub>3</sub>, PM<sub>10</sub>, PM<sub>2.5</sub>, and Pb. The criteria set for these pollutants, the National Ambient Air Quality Standards (NAAQS), represent maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect the public health and welfare. Based on measured ambient criteria pollutant data, the USEPA designates areas in the United States (U.S.) as having air quality better than (attainment) or worse than (nonattainment) the NAAQS.

Once a nonattainment area meets the standards and additional redesignation requirements in the CAA (Section 107(d)(3)(E)), USEPA will designate the area as a “maintenance area.” Maintenance areas are subject to the requirements of maintenance plans that are designed to ensure that the area continues to meet the standards. A maintenance area remains subject to the General Conformity Rule.

### **A.2.2.2 Prevention of Significant Deterioration**

The CAA also established a national goal of preventing degradation or impairment in federally designated Class I areas. Class I areas are defined as those areas where any appreciable degradation in air quality or associated visibility impairment is considered significant. As part of the Prevention of Significant Deterioration (PSD) Program, Congress assigned mandatory Class I status to all national parks, national wilderness areas (excluding wilderness study areas or wild and scenic rivers), and memorial parks greater than 5,000 acres. In Class I areas, visibility impairment is defined as atmospheric discoloration (such as from an industrial smokestack), and a reduction in regional visual range. Visibility impairment or haze results from smoke, dust, moisture, and vapor suspended in the air. Very small particles are either formed from gases (sulfates, nitrates) or are emitted directly into the atmosphere from sources like electric utilities, industrial processes, and vehicle emissions. Stationary sources are regulated under the PSD Program, and the PSD permitting process requires a review of impacts to all Class I areas within 62 miles (100 kilometers) of any proposed major stationary source. Mobile sources, including aircraft and associated operations such as those occurring at the alternative ANG installations being considered under this Proposed Action, are not subject to the requirements of PSD.

### **A.2.2.3 Hazardous Air Pollutants**

In addition to criteria pollutants, the USEPA has defined 187 substances as hazardous air pollutants (HAPs). HAPS are substances that have been determined to present some level of

acute or chronic health risk (cancer or non-cancer) to the general public. These pollutants may be emitted in trace amounts from various types of sources, including combustion sources. HAPs are regulated for specific source categories under the USEPA's *National Emission Standards for Hazardous Air Pollutants* regulations.

#### A.2.2.4 Greenhouse Gases

Greenhouse gases (GHGs) are also regulated under the federal CAA. The USEPA defines GHGs as any of the following compounds: carbon dioxide (CO<sub>2</sub>), methane (CH<sub>4</sub>), nitrous oxide (N<sub>2</sub>O), and fluorinated gases such as hydrofluorocarbons, perfluorocarbons, and sulfur hexafluoride. GHGs have varying global warming potential (GWP). The reference gas for GWP is CO<sub>2</sub>; therefore, CO<sub>2</sub> has a GWP of 1. The other main GHGs that have been attributed to human activity include CH<sub>4</sub>, which has a GWP of 21, and N<sub>2</sub>O, which has a GWP of 310. Carbon dioxide equivalent (CO<sub>2</sub>e) emissions are defined as the amount of CO<sub>2</sub> that would have the same GWP, when measured over a specified timescale (generally, 100 years). CO<sub>2</sub>e emissions are calculated by multiplying the mass emissions by the GWP.

#### A.2.2.5 State Implementation Plan

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with these standards. Each state enforces air pollution regulations and sets guidelines to attain and maintain the NAAQS and state Ambient Air Quality Standards (AAQS) within each respective state associated with the Proposed Action; these guidelines are found in each state's State Implementation Plan (SIP).

Some of the state AAQS are more stringent than the NAAQS, which translates into more emissions reductions generally within the region being required to show that it has attained an applicable AAQS than will be required to show its attainment of the comparable NAAQS.

Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule, states that a federal agency cannot issue a permit for or support an activity unless the agency determines that it will conform to the most recent USEPA-approved SIP. This means that projects using federal funds or requiring federal approval must not: 1) cause or contribute to any new violation of a NAAQS, 2) increase the frequency or severity of any existing violation, or 3) delay the timely attainment of any standard, interim emission reduction, or other milestone. If emissions of one or more of these compounds exceed a *de minimis* threshold, the USAF must demonstrate conformity under one of the methods prescribed by the General Conformity Rule.

### A.2.3 Methodology

The Proposed Action involves both the beddown of the KC-46A aircraft and its operational emissions, construction of new facilities to accommodate the new aircraft, and emissions related to a minor change in personnel commuting to the alternative installations. Environmental consequences to air quality were evaluated to assess whether degradation in air quality would be anticipated from implementation of the Proposed Action at any of the alternative installations. Air quality impacts from the KC-46A beddown were reviewed for significance relative to federal, state, and local air pollution standards and regulations. In the case of criteria pollutants for which the ROI is in attainment of the NAAQS, the analysis used the PSD threshold for new major sources of 250 tons per year (tpy) of that pollutant as an indicator of significance or non-significance of projected air quality impacts. In the case of criteria pollutants for which the project region does not attain an NAAQS or is in a maintenance area, the analysis used the pollutant threshold that triggers a conformity determination (the *de minimis* threshold) under the General Conformity Rule. If proposed emissions exceed a PSD threshold for attainment pollutants or a *de minimis* threshold for nonattainment pollutants, further analysis was conducted to determine whether impacts would be significant. In such cases, if emissions attributable to the Proposed Action (1) do not contribute to an exceedance of an ambient air quality standard, or (2) conform to the approved SIP, air quality impacts would be less than significant.

Factors needed to derive construction source emission rates were obtained from the *Compilation of Air Pollutant Emission Factors*, AP-42, Volume I (USEPA 1995), the USEPA NONROAD 2008a model for nonroad construction equipment (USEPA 2009), and the USEPA MOVES 2010b model for on-road vehicles (USEPA 2013b).

The Proposed Action would include construction activities at the alternative installations. Emissions associated with construction were calculated using construction source emission rates from the *Compilation of Air Pollutant Emission Factors*, AP-42, Volume I (USEPA 1995), the USEPA NONROAD2008 model for nonroad construction equipment (USEPA 2009), and the emission factors for vehicles from the Air Force Civil Engineer Center (AFCEC) *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013) to calculate emissions from fugitive dust, construction equipment, and vehicles. Appendix D includes data and assumptions used to calculate proposed construction emissions.

Air quality impacts from construction would occur from (1) combustion emissions due to the use of fossil fuel-powered equipment and vehicles, and (2) fugitive dust emissions (PM<sub>10</sub>) during demolition activities, earth-moving activities, and the operation of equipment on bare soil. Fugitive dust emissions were calculated based on the total site disturbance projected for each construction project for all construction years. Equipment usage was based on similar construction projects to estimate project combustion and fugitive dust emissions.



Inclusion of standard construction practices and Leadership in Energy and Environmental Design (LEED) certification level of Silver into proposed construction activities would minimize air quality impacts from proposed construction activities. For example, the analysis reduced fugitive dust emissions generated from the use of construction equipment on exposed soil by 50 percent from uncontrolled levels to simulate implementation of standard construction practices for fugitive dust control.

These standard construction practices for fugitive dust control include the following.

- Use water trucks to keep areas of vehicle movement damp enough to minimize the generation of fugitive dust.
- Minimize the amount of disturbed ground area at a given time.
- Suspend all soil disturbance activities when winds exceed 25 miles per hour or when visible dust plumes emanate from the site and stabilize all disturbed areas with water application.
- Designate personnel to monitor the dust control program and to increase watering, as necessary, to minimize the generation of dust.

Operational emissions associated with each alternative associated with the Proposed Action include emissions associated with aircraft operations and associated equipment. Mobile source emissions include emissions from aircraft operations (take-offs and landings), aerospace ground equipment (AGE), privately owned vehicle (POV) operations, and maintenance aircraft operations performed with the engines still mounted on the aircraft (engine run-ups and trim checks). Air quality impacts associated with the Proposed Action for the KC-46A aircraft were assessed by comparing the projected net emissions associated with KC-46A operations with emissions associated with existing operations for the KC-135 aircraft. Emissions evaluated for both the baseline and the Proposed Action at each alternative installation include (1) aircraft operations; (2) POVs, (3) engine run-ups, and (4) AGE use. It was assumed that there would be no net change in use of government motor vehicles (GMVs), construction (outside of the construction activities associated with the Proposed Action), or stationary sources. Emissions from these categories of sources were calculated based on guidance from the USAF in their *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013) utilizing the latest air emissions modeling tools. Factors used to calculate combustive emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A and KC-135 engines are based on those currently used for the KC-135 aircraft in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). A detailed description of the methodology and assumptions used for each source category is provided in Appendix D.

There are no final guidelines for discussing the potential GHG impacts in Environmental Impact Analysis Process documents. The Council on Environmental Quality (CEQ) proposed draft guidance for public comment and review on February 18, 2010, but this draft has never been formally adopted by CEQ. Given the global nature of climate change and the current state of the science, it is not useful at this time to attempt to link the emissions quantified for local actions to any specific climatological change or resulting environmental impact. Nonetheless, the GHG emissions from the project alternatives have been quantified to the extent feasible in this EIS for information and comparison purposes.

### **A.3 SAFETY**

#### **A.3.1 Definition of Resource**

The USAF manages risk as outlined in Air Force Instruction (AFI) 90-802 *Risk Management* (USAF 2013a). Requirements defined in this document provide a process to maintain readiness in peacetime and achieve success in combat while safeguarding people and resources. The safety analysis contained in this EIS addresses issues related to the health and well-being of both military personnel and civilians living in the vicinity of the alternative airfields. Specifically, this section provides information on both ground and flight safety. Ground safety includes discussions of fire/crash response capabilities, Accident Potential Zones (APZs)/Runway Protection Zones (RPZs), explosive safety, and Anti-Terrorism/Force Protection (AT/FP). Flight safety includes discussions on flight safety procedures, aircraft mishaps, bird/wildlife aircraft strike hazards (BASH), and fuel jettison requirements.

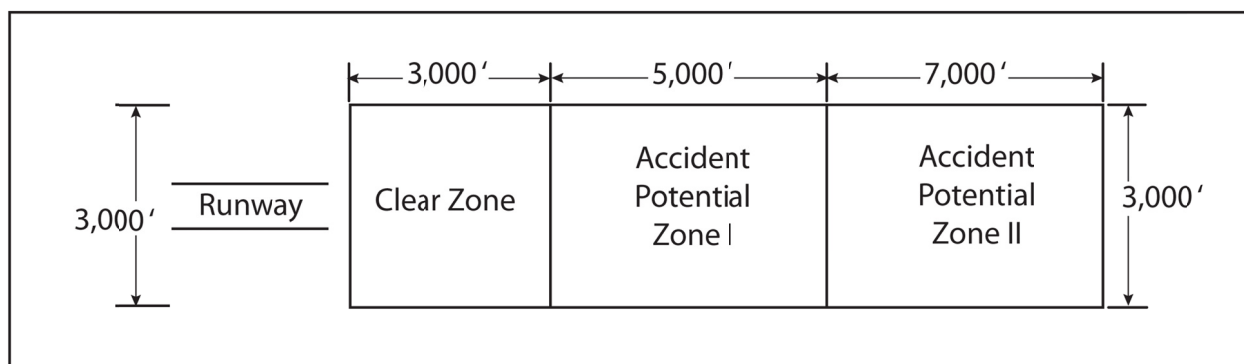
##### **A.3.1.1 Ground Safety**

###### *Fire/Crash Response*

Military airfields present special hazards to rescue and response personnel. Due to the nature of combustibles involved in an aircraft crash, and the physical forces that are experienced, strategic priorities differ from other types of firefighting scenarios. In Aircraft Rescue and Fire Fighting (ARFF), the emphasis is more heavily weighted toward rescue than in structural firefighting. The rule of thumb is initially to fight only the fire that interferes with the rescue. Under the DoD Instruction 6055.6, *DoD Fire and Emergency Services Program*, each military airport is required to have a dedicated rescue team composed of trained fire fighters whose mission includes specific aircraft rescue tasks. Military airports are equipped with rescue vehicles staffed by ARFF personnel using state-of-the-art rescue tools.

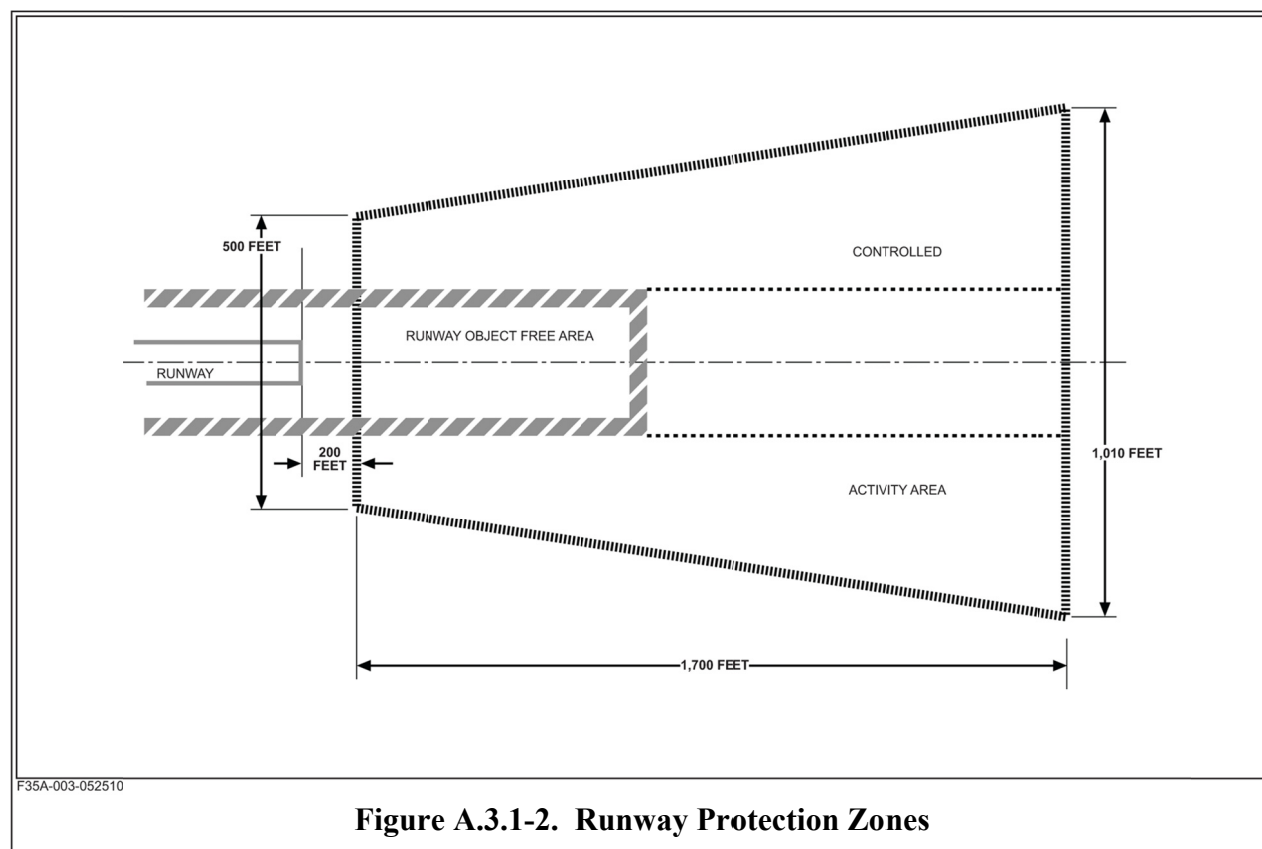
### *Accident Potential Zone/Runway Protection Zone*

Clear Zones and APZs/RPZs are established at military and civilian airfields to delineate recommended surrounding land uses for the protection of people and property on the ground. Clear Zones and APZs define the areas in the vicinity of a military airfield that would have the highest potential to be affected if an aircraft mishap were to occur. The Clear Zone extends 3,000 feet by 3,000 feet off the end of the runway, followed by a 3,000-foot by 5,000-foot APZ I, and a 3,000-foot by 7,000-foot APZ II (Figure A.3.1-1) (DoD Instruction 4165.57, 2011). Similar to APZs, but used at civilian airports, RPZs are trapezoidal zones extending outward from the ends of active runways at commercial airports, and as with APZs, delineate those areas recognized as having the greatest risk of aircraft mishaps, most of which occur during take-off or landing. Development restrictions within RPZs are intended to discourage incompatible land use activities from being established in these areas. The RPZ dimension for a particular runway end is a function of the type of aircraft and minimum approach visibility associated with that runway end. For most commercial airports (e.g., Rickenbacker or Pittsburgh International Airport [IAP]) with large aircraft, the departure RPZ begins 200 feet from the end of the runway and continues out to 1,700 feet, with a width beginning at 500 feet and expanding as the distance from the runway increases to 1,010 feet wide (FAA 2009). The approach RPZ begins 200 feet before the runway threshold and extends out 1,700 feet in a reverse of the departure RPZ (Figure A.3.1-2) (FAA 2009).



Source: DoD 2011.

**Figure A.3.1-1. Accident Potential Zones**



### *Explosive Safety*

Quantity-distance (QD) arcs define levels of risk considered acceptable for potential explosive sites. Separation distances are buffers that provide relative protective or safe distances. QD standards were developed over many years and are based on explosives mishaps and tests. All ordnance is handled and stored in accordance with USAF explosive safety directives (AFI 91-201), and all munitions maintenance is carried out by trained, qualified personnel using USAF-approved technical data.

### *Anti-Terrorism/Force Protection*

AT/FP standards seek effective ways to minimize the likelihood of mass casualties from terrorist attacks against DoD personnel in the buildings in which they work and live. These standards provide minimum levels of protection against terrorist attacks for the occupants of all DoD inhabited buildings. They are intended to be used by security and anti-terrorism personnel and design teams to identify the minimum requirements that must be incorporated into the design of all new construction and major renovations of inhabited DoD buildings. They also include recommendations that should be, but are not required to be, incorporated into all such buildings.

### A.3.1.2 Flight Safety

#### *Flight Safety Procedures*

The Air Force Safety Center (AFSEC) recently initiated several facets for proactive flight safety. While investigations after an accident have yielded causality of mishaps, proactive safety entails searching for and measuring precursors that can lead to accidents before they occur. In mission planning, pre-flight, and during flight, safety is at the forefront of all USAF operations. By AFI, each unit conducting or supporting flight operations must have a flight safety program to support its mission and foster a culture of mishap prevention (USAF 2013a).

#### *Aircraft Mishaps*

Aircraft mishaps are classified as A, B, C, or D (Table A.3.1-1). Class A mishaps are the most severe with total property damage of \$2 million or more or a fatality and/or permanent total disability. It is important to note that in 2010, the threshold for determining Class A and B mishaps was raised from \$1 million to \$2 million dollars for Class A and the ceiling was raised for Class B to two million dollars. Comparison of Class A mishap rates for various aircraft types, as calculated per 100,000 flying hours, provides the basis for evaluating risks among different aircraft and levels of operations. Each base-specific safety section analyzes existing and projected Class A mishap potentials based on flying hours and aircraft types.

<b>Table A.3.1-1. Aircraft Class Mishaps</b>		
<b><i>Mishap Class</i></b>	<b><i>Total Property Damage</i></b>	<b><i>Fatality/Injury</i></b>
A	\$2,000,000 or more and/or aircraft destroyed	Fatality or permanent total disability
B	\$500,000 or more but less than \$2,000,000	Permanent partial disability or three or more persons hospitalized as inpatients
C	\$50,000 or more but less than \$500,000	Nonfatal injury resulting in loss of one or more days from work beyond day/shift when injury occurred
D	\$20,000 or more but less than \$50,000	Recordable injury or illness not otherwise classified as A, B, or C

Source: DoD 2011.

#### *Bird/Wildlife Aircraft Strike Hazard*

BASH and the dangers it presents form another safety concern for aircraft operations. BASH constitutes a safety concern because of the potential for damage to aircraft or injury to aircrews or local populations if an aircraft crash should occur in a populated area. Aircraft can encounter birds at nearly all altitudes up to 30,000 feet above mean sea level (MSL); however, most birds fly close to the ground. According to the AFSEC BASH statistics, more than 50 percent of bird/wildlife strikes occur below 400 feet, and 90 percent occur at less than 2,000 feet above ground level (AGL) (AFSEC 2012a). Of these strikes, approximately 49 percent occur in the

airfield environment (AFSEC 2012b). Waterfowl present the greatest BASH potential due to their congregational flight patterns and because, when migrating, they can be encountered at altitudes up to 20,000 feet AGL. Raptors also present a substantial hazard due to their size and soaring flight patterns. In general, the threat of bird/wildlife aircraft strikes increases during March and April and from August through November due to migratory activities. The USAF BASH program was established to minimize the risk for collisions of birds/wildlife and aircraft and the subsequent loss of life and property. In accordance with AFI 91-202\_AFGM2, *U.S. Air Force Mishap Prevention Program* (USAF 2013b), each flying unit in the USAF (including the Air Force Reserve Command and ANG) must develop a BASH plan to reduce hazardous bird/wildlife activity relative to airport flight operations. The intent of each plan is to reduce BASH issues at airfields by creating an integrated hazard abatement program through awareness, avoidance, monitoring, and actively controlling bird and animal population movements. Some of the procedures outlined in the plan include monitoring the airfield for bird and other wildlife activity, issuing bird hazard warnings, initiating bird/wildlife avoidance procedures when potentially hazardous bird/wildlife activities are reported, and submitting BASH reports for all incidents.

#### *Fuel Jettison*

Aircraft have two major types of weight limits: the maximum take-off weight and the maximum structural landing weight, with the maximum structural landing weight almost always being the lower of the two. This allows an aircraft on a normal, routine flight to take off at the higher weight, consume fuel en route, and arrive at a lower weight. If a flight takes off at the maximum take-off weight and then faces an emergency situation whereupon it must return to the departure airfield, there will not be time to consume the fuel intended for transit to the original destination, and the aircraft may exceed the maximum landing weight to land at the departure airfield. At this point, if the aircraft is capable, sufficient fuel would be jettisoned to reduce the aircraft's weight below that maximum landing weight limit and then it would land. This rare phenomenon is known as fuel jettisoning. AFIs cover the fuel jettison procedures, and local operating policies define specific fuel jettison areas for each base. The KC-46A, like the KC-135 aircraft, has the ability to jettison fuel in cases of emergency and non-emergency situations. Data on historical KC-135 operations show that slightly less than two sorties per thousand resulted in a release of fuel (Headquarters Air Mobility Command [AMC] 2013). The KC-46A can land at its maximum take-off weight; therefore, KC-46A sorties would rarely require fuel jettison. However, depending on the type and severity of an emergency, there is always the possibility of the requirement to adjust gross weight quickly for aircraft maneuverability/control for safety based on the nature of an emergency. If there are flight control issues, etc. where the aircraft needs to be at a lower gross weight for aircraft safety, then fuel jettisoning could take place.

Current USAF policy is designed to minimize potential impacts of fuel jettison events. The continued use of such strategies, in addition to the following tactics, would minimize the deposition of fuel onto the ground from a KC-46A fuel jettison event:

- Fuel jettison would occur at a minimum altitude of 20,000 feet AGL, whenever possible.
- Release fuel in a straight line.
- Release fuel at a right angle to flight level wind direction.
- Release fuel as slowly as possible.
- Release fuel at as fast of an aircraft speed as possible.
- Release fuel at as high of an altitude as possible.

For this EIS, previous studies and fuel jettisoning models were reviewed to determine if fuel jettisoning impacts were a concern to the well-being of humans and the environment. The analysis concluded that maximum fuel deposition values expected from the KC-46A would not produce substantial or significant impacts to human or natural resources (Headquarters Air Mobility Command AMC 2013).

In addition to military procedures, the FAA sets requirements for when and how fuel jettisoning may occur. The FAA instruction stipulates that, whenever possible, fuel can only be jettisoned above a minimum altitude of 20,000 feet AGL to improve its evaporation, and that a jettisoning aircraft must be separated from other air traffic by at least 5 miles (FAA 2012). Air traffic controllers are also instructed to direct planes dumping fuel away from populated areas and over large bodies of water to the extent practicable. In 2001, the USEPA National Vehicle and Fuel Emissions Laboratory concluded, “Since fuel dumping is a rare event, and the fuel would likely be dispersed over a very large area, we believe its impact to the environment would not be serious” (USEPA 2001).

The primary environmental concern from fuel jettison from an aircraft is for it to negatively impact human health or natural resources. The results of a study by Harvey Clewell concluded that if JP-4 jet fuel was jettisoned above a critical altitude of 20,000 feet AGL, the ultimate ground fall and related environmental impact would be negligible (Clewell 1980). The dumped fuel evaporates completely or it is transformed before reaching the ground. Only at significant lower dumping altitude or during strong precipitation, it may be possible that finest fuel droplets reach the ground.

With the USAF transition to JP-8 jet fuel, further studies on the effects of fuel jettisoning were warranted as the lower volatility of JP-8 fuel increases the time required for complete evaporation at ambient temperatures. Several mathematical models were developed and/or used to assess the impact of jettisoning JP-8 jet fuel, including an Air Force Institute of Technology model, the Fuel Jettisoning Simulation Model, and the Fuel Dumping Impact Assessment Model.



Additionally, a modified version of the Air Force Institute of Technology model, which includes surface evaporation, was used to evaluate the time required to evaporate JP-8 jet fuel after it reaches the surface.

Compared with the impact of JP-4 jet fuel, the jettisoning of JP-8 does result in more fuel reaching the surface. The surface and atmospheric temperatures greatly influence the evaporation rate of the jet fuel. Surface temperatures around 0 degrees Celsius (°C) (32 degrees Fahrenheit [°F]) and below result in a greater fraction of fuel reaching the surface. However, assuming a controlled release above 20,000 feet AGL and a non-freezing surface temperature, the deposition value of JP-8 is below known natural resource and human health thresholds for jet fuel and the impact should be negligible (Todd 1995). Accordingly, AFI 11-2KC-135 Volume 3, *C/KC-135 Operations Procedures*, and AMC policy establish 20,000 feet AGL as the minimum fuel jettison altitude.

### **A.3.2 Methodology**

Based on the current commercial Boeing 767 aircraft, development and basing of the KC-46A includes a robust safety clearance program conducted by test pilots in multiple phases at the Boeing aircraft test facility. Modeling, simulation, and ground tests reduce the uncertainties of flight testing, and the flight test program ensures flight safety and reducing risks associated with new technologies.

At publication of this EIS, there have not been enough flight hours to accurately depict the specific safety record for this new aircraft. Therefore, the analysis used the similar airframe of the Boeing 767 aircraft safety records. Mishap analysis was based on that commercial aircraft to draw operational history, as well as the current refueling aircraft, the KC-135.

The assessment of safety examines how implementation of any of the alternatives would affect safety at the particular airfield location. Public safety impacts are considered relative to whether the general public is endangered as a result of proposed USAF activities. For each training activity or group of similar activities, an estimate of risk to the general public was formulated based on USAF safety procedures. Existing AFI and regulations provide operational and safety procedures for all normal USAF aerial events. Several factors were considered in evaluating the effects of USAF proposed activities on public safety. These factors include proximity to the public, access control, scheduling, public notification of events, frequency of events, duration of events, safety procedures, operational control of training events, and safety history.

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## **A.4 SOILS AND WATER RESOURCES**

### **A.4.1 Definition of the Resource**

The term “soils” refers to the unconsolidated earthen organic or mineral materials overlying bedrock or other parent material. Soil structure, elasticity, strength, shrink-swell potential, and erodibility all determine the suitability of the ground to support man-made structures and facilities. Relative to development, soils typically are described in terms of their type, slope, physical characteristics, and relative compatibility or limitations with regard to particular construction activities and types of land use.

The Farmland Protection Policy Act (FPPA) was passed by Congress as part of the Agriculture and Food Act of 1981 (Public Law 97-98) in response to findings that millions of acres of farmland were being converted to non-farm uses each year. The Agriculture and Food Act was passed in an effort to protect farmland and combat urban sprawl. Additionally, the FPPA is intended to minimize the impact federal programs have on the unnecessary and irreversible conversion of farmland to nonagricultural uses. It assures that, to the extent possible, federal programs are administered to be compatible with state, local, and private programs and policies to protect farmland. For the purpose of FPPA, farmland includes prime farmland, unique farmland, and land of statewide or local importance.

Water resources analyzed in this EIS include both surface and groundwater quantity and quality, and floodplains. Surface water includes all lakes, ponds, rivers, and streams and is important for a variety of reasons including irrigation, power generation, recreation, flood control, and human health. The nation’s waters are protected under the Clean Water Act (CWA). The goal of the CWA is to restore and maintain the chemical, physical, and biological integrity of the nation’s waters so that they can support “the protection and propagation of fish, shellfish, and wildlife and recreation in and on the water.” Pollutants regulated under the CWA include “priority” pollutants, including various toxic pollutants; “conventional” pollutants, such as biochemical oxygen demand, total suspended solids, fecal coliform, oil and grease, and pH; and “non-conventional” pollutants, including any pollutant not identified as either conventional or priority. Under the CWA Section 402, it is illegal to discharge any point and/or nonpoint pollution sources into any surface water without a National Pollutant Discharge Elimination System (NPDES) permit. Specific State NPDES programs are discussed in Chapter 3 under each installation.

Groundwater includes the subsurface hydrologic resources of the physical environment and is by and large a safe and reliable source of fresh water for the general population, especially those in areas of limited precipitation and is commonly used for potable water consumption, agricultural irrigation, and industrial applications. Groundwater also plays an important part in the overall

hydrologic cycle and its properties are described in terms of depth to aquifer or water table, water quality, and surrounding geologic composition.

Floodplains are defined by Executive Order (EO) 11988, *Floodplain Management*, as “the lowland and relatively flat areas adjoining inland and coastal waters including flood-prone areas of offshore islands, including at a minimum, the area subject to a one percent or greater chance of flooding in any given year” (that area inundated by a 100-year flood). Floodplains and riparian habitat are biologically unique and highly diverse ecosystems providing a rich diversity of aquatic and terrestrial species, as well as promoting stream bank stability and regulating water temperatures. EO 11988 requires federal agencies to avoid, to the extent possible, the long- and short-term adverse impacts associated with the occupancy and modification of floodplains and to avoid direct or indirect support of floodplain development whenever there is a practicable alternative.

The ROI for soils includes the locations on each installation where construction activities would occur. The ROI for water resources includes each of the five installations, as well as nearby surface waters that receive runoff generated within the specific project areas.

#### **A.4.2 Methodology**

Minimization of soil erosion and the siting of facilities in relation to soil limitations are considered when evaluating impacts to soils. Generally, impacts associated with earth resources can be avoided or minimized to a level of insignificance if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development. Should the proposed activities have the potential to convert farmland to non-farm use, a land evaluation and site assessment would be conducted and alternative sites considered should potential adverse impacts to farmland exceed the recommended allowable level.

Adverse impacts to soils and the associated potential indirect impacts to water resources can be minimized through the implementation of standard construction practices such as those typically required to be in compliance with the CWA (i.e., the use of well-maintained silt fences or straw wattles, minimizing surficial areas disturbed, stabilization of cut/fill slopes, minimization of earth-moving activities during wet weather, and covering of soil stockpiles, as appropriate). Analysis of impacts to soil resources resulting from proposed activities examines the suitability of locations for proposed operations and activities. Impacts to soil resources can result from earth disturbance that would expose soil to wind or water erosion.

With regard to water resources, the primary concerns associated with the Proposed Action include changes to surface water drainage, effects on water quality during construction activities, and groundwater recharge. Stormwater discharges from construction activities (such as clearing,

grading, excavating, and stockpiling) that disturb 1 or more acres, or smaller sites that are part of a larger common plan of development or sale, are regulated under the NPDES stormwater program. Prior to discharging stormwater, construction operators must obtain coverage under an NPDES permit, which is administered by either the State (if it has been authorized to operate the NPDES stormwater program) or USEPA, depending on where the construction site is located. The permit is based on a project's overall risk and requires measures to prevent erosion and reduce sediment and other pollutants in their discharges. Compliance with this permit involves development and implementation of a Stormwater Pollution Prevention Plan (SWPPP) that includes site-specific management measures.

## **A.5 BIOLOGICAL RESOURCES**

### **A.5.1 Definition of the Resource**

Biological resources include living, native, or naturalized plant and animal species and the habitats within which they occur. Plant associations are generally referred to as *vegetation* and animal species are referred to as *wildlife*. Habitat can be defined as the resources and conditions present in an area that produces occupancy of a plant or animal (Hall *et al.* 1997). Although the existence and preservation of biological resources are intrinsically valuable, these resources also provide aesthetic, recreational, and socioeconomic values to society. This analysis focuses on species or vegetation types that are important to the function of the ecosystem, of special societal importance, or are protected under federal or state law or statute. For purposes of this EIS, these resources are divided into four major categories: vegetation, wildlife, special status species, and wetlands.

*Vegetation types* include all existing terrestrial plant communities as well as their individual component species. The affected environment for vegetation includes only those areas potentially subject to ground disturbance.

For the purposes of this analysis, *wildlife* includes all fish, amphibian, reptile, bird, and mammal species with the exception of those identified as special status species (special status wildlife species are addressed separately due to their protected status). Wildlife also includes those bird species protected under the federal Migratory Bird Treaty Act, the Bald and Golden Eagle Protection Act, and other species-specific conservation legal authorities. Assessment of a project's effect on migratory birds places an emphasis on "species of concern" as defined by EO 13186, *Responsibilities of Federal Agencies to Protect Migratory Birds*. Additional assessment of potential impacts to migratory birds that are regionally rare occurs under the special status species category.

*Special Status Species* are defined as those plant and animal species listed as endangered, threatened, and species proposed for listing by the U.S. Fish and Wildlife Service (USFWS)

under the Endangered Species Act (ESA), and by state agencies. The federal ESA protects federally listed endangered and threatened plant and animal species. Critical habitat is a term defined and used in the ESA. It is a specific geographic area(s) that contains features essential for the conservation of a threatened or endangered species and that may require special management and protection. Federally identified candidate species (species proposed for listing) are not protected under law; however, these species could become listed, and therefore, protected at any time. Their consideration early in the planning process may avoid future conflicts that could otherwise occur. Additionally, the corresponding state regulatory agencies (Kansas Department of Wildlife, Parks and Tourism; New Jersey Division of Fish and Wildlife; New Hampshire Fish and Game; Pennsylvania Department of Conservation and Natural Resources, and Ohio Department of Natural Resources) protect state-listed plant and animal species through State fish and wildlife and administrative codes.

*Wetlands* are considered sensitive habitats and are subject to federal regulatory authority under Section 404 of the CWA and EO 11990, *Protection of Wetlands*. Wetlands are defined by the U.S. Army Corps of Engineers (USACE) as those areas that are inundated or saturated by surface or groundwater at a frequency and duration sufficient to support, and that under normal circumstances do support, a prevalence of vegetation typically adapted for life in saturated soil conditions (Environmental Laboratory 1987). Wetlands generally include swamps, marshes, bogs, and similar areas.

The ROI for biological resources consists of lands within the vicinity of the airfield at the five alternative locations.

### **A.5.2 Methodology**

Analysis of impacts to biological resources focuses on whether and how components of the Proposed Action could affect biological resources. Determination of the significance of potential impacts to biological resources is based on:

- the importance (i.e., legal, commercial, recreational, ecological, or scientific) of the resource,
- the proportion of the resource that would be affected relative to its occurrence in the region,
- the sensitivity of the resource to proposed activities, and
- the duration of ecological ramifications.

Impacts to biological resources would be considered significant if species or habitats of concern were significantly adversely affected over relatively large areas or disturbances resulted in

reductions in the population size or distribution of a special status species, or if laws, codes, or ordinances protecting special status species were violated.

## **A.6 CULTURAL RESOURCES**

### **A.6.1 Definition of the Resource**

Cultural resources consist of prehistoric and historic districts, sites, structures, artifacts, or any other physical evidence of human activity considered important to a culture, subculture, or community for scientific, traditional, religious, or other reasons. Cultural resources can be divided into three major categories: archaeological resources (prehistoric and historic), architectural resources, and traditional cultural resources.

*Archaeological resources* are locations where human activity measurably altered the earth or left deposits of physical remains (e.g., tools, arrowheads, or bottles). “Prehistoric” refers to resources that predate the advent of written records in a region. These resources can range from a scatter composed of a few artifacts to village sites and rock art. “Historic” refers to resources that postdate the advent of written records in a region. Archaeological resources can include campsites, roads, fences, trails, dumps, battlegrounds, mines, and a variety of other features.

*Architectural resources* include standing buildings, dams, canals, bridges, and other structures of historic or aesthetic significance. Architectural resources generally must be more than 50 years old to be considered for protection under existing cultural resource laws. However, more recent structures, such as Cold War era military buildings, may warrant protection if they have exceptional characteristics and the potential to be historically significant structures. Architectural resources must also possess integrity (i.e., its important historic features must be present and recognizable).

*Traditional cultural resources* can include archaeological resources, buildings, neighborhoods, prominent topographic features, habitats, plants, animals, and minerals that Native Americans or other groups consider essential for the continuance of traditional cultures.

Only cultural resources considered to be significant, known or unknown, warrant consideration with regard to adverse impacts resulting from a proposed action. To be considered significant, archaeological or architectural resources must meet one or more criteria as defined in 36 CFR 60.4 for inclusion in the National Register of Historic Places (NRHP). The quality of significance in American history, architecture, archaeology, engineering, and culture is present in districts, sites, buildings, structures and objects that possess integrity of location, design, setting, materials, workmanship, feeling, and association, and:

- (a) that are associated with events that have made a significant contribution to the broad patterns of our history; or
- (b) that are associated with the lives of persons significant in our past; or
- (c) that embody the distinctive characteristics of a type, period, or method of construction; or
- (d) that represent the work of a master, or that possess high artistic values, or that represent a significant and distinguishable entity whose components may lack individual distinction; or
- (e) that have yielded, or may be likely to yield, information important in prehistory or history.

Several federal laws and regulations have been established to manage cultural resources, including the National Historic Preservation Act (NHPA) (1966), the Archaeological and Historic Preservation Act (1974), American Indian Religious Freedom Act (1978), the Archaeological Resources Protection Act (1979), and Native American Graves Protection and Repatriation Act (1990). In addition, coordination with federally recognized Native American tribes must occur in accordance with EO 13175, *Consultation and Coordination with Indian Tribal Governments*.

On November 27, 1999, the DoD promulgated its Annotated American Indian and Alaska Native Policy, which emphasizes the importance of respecting and consulting with tribal governments on a government-to-government basis in recognition of their sovereignty as a nation. This Policy requires an assessment, through consultation, of the effect of proposed DoD actions that may have the potential to significantly affect protected tribal resources, tribal rights, and Indian lands before decisions are made by the respective services (DoD American Indian/Alaska Native Policy), as does DoD Instruction 4710.02, *Interaction with Federally Recognized Tribes* (September 14, 2006).

The ROI for cultural resources includes only those locations on the specific installation where facility renovation or construction and its staging would occur and potential ground disturbance would result. The ROI does not include areas under the airspace used by the units, as there are no relevant changes to use of the airspace. There are no known tribal resources within any installation ROI that would be affected by noise.

#### **A.6.2 Methodology**

Cultural resources are subject to review under both federal and state laws and regulations. Section 106 of the NHPA of 1966 empowers the Advisory Council on Historic Preservation to comment on federally initiated, licensed, or permitted projects affecting cultural sites listed or eligible for inclusion on the NRHP. Once cultural resources have been identified, significance evaluation is the process by which resources are assessed relative to significance criteria for



scientific or historic research, for the general public, and for traditional cultural groups. Only cultural resources determined to be significant (i.e., eligible for the NRHP) are protected under the NHPA.

To complete the analysis of impacts to cultural resources, various sources of information were utilized. This included a review of previous cultural resource survey reports, Integrated Cultural Resource Management Plans, if available, and other documents available from the five installations that contained background information on the histories and the physical landscapes of the installations. Additionally, consultation with federally-recognized American Indian Tribes is in process to assist in determining impacts to traditional cultural resources. The list of Tribes being consulted was primarily compiled using two federal on-line resources: 1) the U.S. Department of Housing and Urban Development Tribal Directory Assessment Tool Version 2.0, which is designed to help users identify tribes by county and state and to provide appropriate tribal contact information to assist in consultation (U.S. Department of Housing and Urban Development 2013); and 2) the Native American Consultation Database, part of the National Native American Graves Protection and Repatriation Act Online Databases, which is a tool for identifying consultation contacts (National Park Service 2013). The JB MDL ANGS has already invited two federally-recognized tribes (Delaware Nation and Delaware Tribe of Indians) to participate in a government-to-government relationship. In the past, the Stockbridge-Munsee Community was invited by JB MDL to participate in government-to-government consultation, but declined interest in being further consulted. At Forbes ANGS, the Tribes to include in consultation were determined from a list provided in the Integrated Cultural Resource Management Plan (Air Force Center for Engineering and the Environment 2010) by the Kansas SHPO as having an interest in Shawnee County. The *Federal Register* was utilized to verify the federally-recognized status of each Tribe (77 *Federal Register* 47868 2012). Table A.6.2-1 lists the federally-recognized tribes for consultation at each installation.

**Table A.6.2-1 Federally-recognized Tribes for Consultation**

<i>Alternative #</i>	<i>Installation, State</i>	<i>Tribe(s)<sup>1</sup></i>
Alternative #1	Forbes ANGS, Kansas	1) Citizen Potawatomi Nation 2) Delaware Nation 3) Kaw Nation 4) Osage Nation of Oklahoma 5) Prairie Band of Potawatomi Nation 6) Absentee Shawnee Tribe of Oklahoma 7) Eastern Shawnee Tribe of Oklahoma 8) Wichita and Affiliated Tribes
Alternative #2	JB MDL, New Jersey	1) Delaware Nation 2) Delaware Tribe of Indians 3) Stockbridge-Munsee Community <sup>2</sup>
Alternative #3	Pease ANGS, New Hampshire	1) Penobscot Indian Nation
Alternative #4	Pittsburgh ANGS, Pennsylvania	1) Cayuga Nation of New York 2) Onondaga Nation of New York 3) Tuscarora Nation of New York 4) Seneca Nation of Indians 5) Tonawanda Band of Seneca
Alternative #5	Rickenbacker ANGS, Ohio	1) Citizen Potawatomi Nation 2) Delaware Nation 3) Prairie Band of Potawatomi Nation 4) Eastern Shawnee Tribe of Oklahoma 5) Forest County Potawatomi Community 6) Hannahville Indian Community 7) Miami Tribe of Oklahoma 8) Ottawa Tribe of Oklahoma 9) Peoria Tribe of Indians Oklahoma 10) Pokagon Band of Potawatomi Indians 11) Shawnee Tribe 12) Turtle Mountain Band of Chippewa Indians of North Dakota 13) Wyandotte Nation

Notes: 1. Several tribes overlap with one or more installations. When this occurred only one letter was sent out discussing each installation they may have an interest in.

2. This Tribe was identified prior to knowledge that they had declined further consultation with JB MDL.

Analysis of potential impacts to cultural resources considers both direct and indirect impacts.

Direct impacts may occur by:

- physically altering, damaging, or destroying all or part of a resource;
- altering characteristics of the surrounding environment that contribute to resource significance;
- introducing visual, audible, or atmospheric elements that are out of character with the property or alter its setting; or
- neglecting the resource to the extent that it deteriorates or is destroyed.

Direct impacts can be assessed by identifying the type and location of the proposed action and by determining the exact locations of cultural resources that could be affected. Indirect impacts primarily result from the effects of project-induced population increases and the resultant need to develop new housing areas, utilities services, and other support functions necessary to accommodate population growth. These activities and subsequent use of facilities can disturb or destroy cultural resources.

## **A.7 LAND USE**

### **A.7.1 Definition of the Resource**

Land use comprises the natural conditions and/or human-modified activities occurring at a particular location. Human-modified land use categories generally include residential, commercial, industrial, agricultural, and other public uses. Management plans and zoning regulations determine the type and extent of land use allowable in specific areas and are often intended to protect specially designated or environmentally sensitive areas and sensitive noise receptors.

Several siting criteria have been established specifically for land development and use at commercial and military airfields. For example, APZs and RPZs, which address height restrictions, development density, and land use in and around airports, are enforced to reduce the potential for aircraft-related hazards.

The Federal Interagency Committee on Urban Noise (FICUN) and the Department of Defense have established guidelines to help assess land use compatibility with aircraft noise exposure. As shown in Table A.7.1-1, a range of noise exposure levels are associated with a given land use. The relative position of the compatibility interval is arbitrarily defined within 5 to 10 dB of an absolute level to indicate compatibility. These guidelines are intended as a planning tool and as such provide general indications as to whether particular land uses are appropriate for certain measured noise exposure levels. The designations in the table do not constitute a federal determination that any land use is acceptable or unacceptable under federal, state, or local law.

The ROI for land use is the area immediately surrounding the airfield at each alternative installation. The ROI does not include the land underneath the Special Use Airspace (SUA) proposed for use since no new airspace or changes to the existing airspace structure are proposed. The proposed increase in operations would not result in changes to the noise environment that would affect existing land uses.

**Table A.7.1-1. Land-Use Compatibility With Yearly Day-Night  
Average Sound Levels**

Land Use	Yearly Day-Night Average Sound Level (DNL) in Decibels					
	Below 65	65–70	70–75	75–80	80–85	Over 85
Residential						
Residential, other than mobile homes and transient lodgings	Y	N(1)	N(1)	N	N	N
Mobile home parks	Y	N	N	N	N	N
Transient lodgings	Y	N(1)	N(1)	N(1)	N	N
Public Use						
Schools	Y	N(1)	N(1)	N	N	N
Hospitals and nursing homes	Y	25	30	N	N	N
Churches, auditoria, and concert halls	Y	25	30	N	N	N
Government services	Y	Y	25	30	N	N
Transportation	Y	Y	Y(2)	Y(3)	Y(4)	Y(4)
Parking	Y	Y	Y(2)	Y(3)	Y(4)	N
Commercial Use						
Offices, business and professional	Y	Y	25	30	N	N
Wholesale and retail—building materials, hardware, and farm equipment	Y	Y	Y(2)	Y(3)	Y(4)	N
Retail trade—general	Y	Y	25	30	N	N
Utilities	Y	Y	Y(2)	Y(3)	Y(4)	N
Communication	Y	Y	25	30	N	N
Manufacturing and Production						
Manufacturing, general	Y	Y	Y(2)	Y(3)	Y(4)	N
Photographic and optical	Y	Y	25	30	N	N
Agriculture (except livestock) and forestry	Y	Y(6)	Y(7)	Y(8)	Y(8)	Y(8)
Livestock farming and breeding	Y	Y(6)	Y(7)	N	N	N
Mining and fishing, resource production and extraction	Y	Y	Y	Y	Y	Y
Recreational						
Outdoor sports arenas and spectator sports	Y	Y(5)	Y(5)	N	N	N
Outdoor music shells, amphitheaters	Y	N	N	N	N	N
Nature exhibits and zoos	Y	Y	N	N	N	N
Amusements, parks, resorts, and camps	Y	Y	Y	N	N	N
Golf courses, riding stables, and water recreation	Y	Y	25	30	N	N

Numbers in parentheses refer to notes.

\* The designations contained in this table do not constitute a federal determination that any use of land covered by the program is acceptable or unacceptable under federal, state, or local law. The responsibility for determining the acceptable and permissible land uses and the relationship between specific properties and specific noise contours rests with the local authorities. FAA determinations under Part 150 are not intended to substitute federally determined land uses for those determined to be appropriate by local authorities in response to locally determined needs and values in achieving noise-compatible land uses.

**KEY TO A.7.1-1**

Y (YES) = Land Use and related structures compatible without restrictions.

N (No) = Land Use and related structures are not compatible and should be prohibited.

NLR = Noise Level Reduction (outdoor to indoor) to be achieved through incorporation of noise attenuation into the design and construction of the structure.

25, 30, or 35 = Land Use and related structures generally compatible; measures to achieve NLR of 25, 30, or 35 dB must be incorporated into design and construction of structures.

**NOTES FOR TABLE A.7.1-1**

- (1) Where the community determines that residential or school uses must be allowed, measures to achieve outdoor-to-indoor Noise Level Reduction (NLR) of at least 25 dB and 30 dB should be incorporated into building codes and be considered in individual approvals. Normal residential construction can be expected to provide an NLR of 20 dB; thus the reduction requirements are often stated as 5, 10, or 15 dB over standard construction and normally assume mechanical ventilation and closed windows year-round. However, the use of NLR criteria will not eliminate outdoor noise problems.
- (2) Measures to achieve NLR 25 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- (3) Measures to achieve NLR 30 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- (4) Measures to achieve NLR 35 dB must be incorporated into the design and construction of portions of these buildings where the public is received, office areas, noise-sensitive areas, or where the normal noise level is low.
- (5) Land-use compatible provided special sound reinforcement systems are installed.
- (6) Residential buildings require an NLR of 25.
- (7) Residential buildings require an NLR of 30.
- (8) Residential buildings not permitted.

Source: FICUN 1980.

### **A.7.2 Methodology**

Impacts to land use are evaluated by identifying whether an action is incompatible with an existing land use due to noise, safety, or other issues. The significance of potential land use impacts is based on the level of land use sensitivity in areas affected by a proposed action. In general, land use impacts would be significant if the action would: (1) be inconsistent or non-compliant with applicable land use plans or policies, including the county or city plans; (2) preclude the viability of an existing land use activity within the ROI; (3) preclude continued use or occupation of an area; or (4) be incompatible with adjacent nearby land use to the extent that public health or safety is threatened.

## **A.8 INFRASTRUCTURE AND TRANSPORTATION**

### **A.8.1 Definition of the Resource**

Infrastructure refers to the system of public works, such as utilities and transportation, which provide the underlying framework for a community. Utilities include such amenities as water, power supply, and waste management. Transportation refers to roadway and street systems, the movement of vehicles on roadway networks, pedestrian and bicycle traffic, and mass transit. The infrastructure components to be discussed in this section include the electrical system, natural gas system, wastewater, stormwater, solid waste management, potable water system, and the transportation network.

The ROI for infrastructure primarily consists of the five alternative installations, with additional information presented for the surrounding vicinity, where relevant.

### **A.8.2 Methodology**

Potential impacts to infrastructure elements at the five alternative installations are assessed in terms of effects of the Proposed Action on existing service levels. Impacts to transportation and utilities are assessed with respect to the potential for disruption or improvement of current circulation patterns and utility systems, deterioration or improvement of existing levels of service, and changes in existing levels of transportation and utility safety. Impacts may arise from physical changes to circulation or utility corridors, construction activity, and introduction of construction-related traffic and utility use. Adverse impacts to roadway capacities would be significant if roads with no history of capacity exceedance had to operate at or above their full design capacity as a result of an action. Transportation effects may arise from changes in traffic circulation, delays due to construction activity, or changes in traffic volumes. Utility system effects may include disruption, degradation, or improvement of existing levels of service or potential change in demand for energy or water resources.

For the range of public services discussed, the installations are required to proactively plan for and assess all specific infrastructure and utility requirements and other essential services to ensure that the proposed increase in personnel and their dependents would be accommodated under the Proposed Action. The installations routinely evaluate community facilities and services to account for fluctuations associated with new units assigned to the installation and the deployment of existing units. In addition, the installations identify infrastructure or utility needs within the scope of each corresponding project. If particular projects require additional infrastructure or utilities, they are incorporated as a part of that project. This process ensures that any infrastructure or utility deficiencies are identified in the initial planning stages.

To assess impacts to local landfills associated with solid waste generation as a result of proposed construction projects, a multiplier was used provided by the USEPA to estimate solid waste generation. The estimated pounds of waste generated each year from renovations, as described in *Building-Related Construction and Demolition Materials Amounts* (USEPA 2009), is:

$$(Total\ square\ footage\ of\ construction\ renovation\ per\ year) \times (11.79\ pounds/square\ foot\ [SF])^* = X\ pounds\ of\ debris.$$

\*11.79 pounds per SF is a USEPA multiplier used to estimated rate of debris generated during nonresidential renovations for an average office renovation based on sampling studies documented in *Building-Related Construction and Demolition Materials Amounts* (USEPA 2009). To estimate construction waste from nonresidential new construction (versus renovation), the USEPA uses a multiplier of 4.34 pounds per SF.

For this analysis, potential infrastructure impacts associated with implementation of the Proposed Action are evaluated. Potential infrastructure impacts would be related to construction activity and facility operations after completion, in addition to any increase in personnel associated with the Proposed Action.

## **A.9 HAZARDOUS MATERIALS AND WASTES**

### **A.9.1 Definition of the Resource**

This EIS analyzes impacts related to hazardous materials, toxic substances, hazardous waste, and contaminated sites. The potential for hazardous materials to be introduced to the alternative installations during the course of site development and construction activities; for toxic and hazardous wastes to be generated as a result of construction and demolition activities; and for encounters with contaminated media during the course of site preparation and construction/demolition activities is analyzed.

Impacts related to the continuing use of hazardous materials and generation of hazardous wastes associated with aircraft operations and maintenance as a result of the proposed aircraft conversion are also analyzed. Operational changes (increases/decreases in flying time) would affect the amount of hazardous materials used and stored at the alternative installations, as well as the amount of hazardous waste generated. In addition, changes in maintenance activities and schedules could result in a change in the use of hazardous or toxic substances or generation of hazardous wastes compared to existing conditions.

The ROI for hazardous materials and waste includes areas that could be exposed to an accidental release of a hazardous substance from construction activities, other specific areas affected by past and current hazardous waste operations, and areas where hazardous materials would be utilized or stored. Therefore, the ROI for this action is defined as the five alternative installations.

#### A.9.1.1 Hazardous Materials and Waste

Hazardous materials are chemical substances that pose a substantial hazard to human health or the environment. Hazardous materials include hazardous substances, extremely hazardous substances, hazardous chemicals, and toxic chemicals. In general, these materials pose hazards because of their quantity, concentration, physical, chemical, or infectious characteristics. The Resource Conservation and Recovery Act (RCRA) (42 USC 6903[5]) defines a hazardous waste as a solid waste, or combination of solid waste, which because of its quantity, concentration, or physical, chemical, or infectious characteristics may: (1) cause, or significantly contribute to, an increase in mortality or an increase in serious irreversible, or incapacitating reversible, illness; or (2) pose a substantial present or potential hazard to human health or the environment when improperly treated, stored, transported, disposed of, or otherwise managed. For the purpose of this analysis, hazardous wastes include solid wastes that are regulated as hazardous based on either direct listing by USEPA or because they exhibit certain characteristics (ignitability, reactivity, corrosivity, and toxicity), as well as those contaminants present in environmental media (e.g., soil or groundwater).

Hazardous substances are defined and regulated under the laws administered by OSHA, USEPA, and the U.S. Department of Transportation. Each of these agencies incorporates hazardous substance terminology in accordance with its unique Congressional mandate:

- OSHA regulations categorize substances in terms of their impacts to employee and workplace health and safety;
- U.S. Department of Transportation regulations categorize substances in terms of their safety in transportation; and



- USEPA regulations categorize substances in terms of protection of the environment and the public health.

With regard to environmental impacts, hazardous substances are regulated under several federal programs administered by the USEPA, including Comprehensive Environmental Response, Compensation, and Liability Act, Toxic Substances Control Act (TSCA), and RCRA. DoD installations are required to comply with these laws and Emergency Planning and Community Right-to-Know Act (per EO 15314), along with other applicable federal, state, and DoD regulations, as well as with relevant EOs.

When accumulating hazardous waste on-site, large quantity generators must comply with 40 CFR 262.34(a) and small quantity generators must comply with 40 CFR 262.34(d) to avoid the requirement to obtain a hazardous waste treatment, storage, or disposal permit. Generators of 1,000 kilograms/month of hazardous waste or >1 kilogram/month of acute hazardous waste are large quantity generators. A hazardous waste generation point is where the waste is initially created or generated. A satellite accumulation point (SAP) is an area where hazardous waste is initially accumulated at the point of generation and is under the control of the SAP manager. Wastes stored in these areas may be stored for 90 days for large quantity generators and 180 days for small quantity generators. Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation central accumulation point (CAP).

#### A.9.1.2 Toxic Substances

The promulgation of TSCA (40 CFR §§ 700-766) represented an effort by the federal government to address those chemical substances and mixtures for which it was recognized that the manufacture, processing, distribution, use, or disposal may present unreasonable risk of personal injury or health of the environment, and to effectively regulate these substances and mixtures in interstate commerce. The TSCA Chemical Substances Inventory lists information on more than 62,000 chemicals and substances. Toxic chemical substances regulated by USEPA under TSCA include asbestos and lead, which for the purposes of this analysis, are evaluated in the most common forms found in buildings, namely asbestos-containing materials (ACMs) and lead-based paint (LBP). TSCA also establishes management obligations for the cleanup of polychlorinated biphenyls (PCBs).

ACMs have been classified as a HAP by the USEPA in accordance with Section 112 of the CAA. Surveys would be conducted for ACMs, as required by 40 CFR § 61.145, during the design phase of each construction project and prior to demolition or renovation of any structure. Any located ACM would be characterized, managed, transported, and disposed of according to

applicable state and federal requirements for protecting human health and safety and the environment.

LBP may also be present in buildings or other facilities that would be modified or demolished as part of the Proposed Action. Similar to ACMs, surveys would be conducted on structures to be modified or demolished for LBP during the design phase of each construction project and prior to structure demolition or renovation. LBP sampling would be conducted on the structures to be removed and analyzed in accordance with USEPA approved Toxicity Characteristic Leaching Procedure methodology. Based on this federal testing methodology, the paint would be considered hazardous if lead is detected at concentrations greater than 5 micrograms per liter. If LBP were detected at hazardous concentrations, these materials would be removed according to accepted methodologies. LBP would be characterized, managed, transported, and disposed of according to applicable state and federal requirements for protecting human health and safety and the environment.

Beginning in the 1920s, PCBs had many common household uses, including applications in electrical transformers, as coolants in refrigeration machinery, and in oil and hydraulic fluids. PCBs are toxic and have been classified as a persistent organic pollutant, acting as carcinogens that do not break down easily in the environment. Thus, the manufacture and use of PCBs in the U.S. was banned by Congress in 1979 and cleanup actions are regulated through TSCA.

#### **A.9.1.3 Contaminated Sites**

Potential hazardous waste contamination areas are being investigated as part of the Defense Environmental Restoration Program (DERP). DoD developed the DERP to identify, investigate, and remediate potentially hazardous material disposal sites on DoD property prior to 1984. There are two restoration programs under DERP, the Installation Restoration Program (now known as the Environmental Restoration Program [ERP]) and the Military Munitions Response Program. These programs were instituted to satisfy the requirements of Comprehensive Environmental Response, Compensation, and Liability Act and RCRA for former and current hazardous waste sites.

### **A.9.2 Methodology**

The qualitative and quantitative assessment of impacts from hazardous materials and solid waste management focuses on how and to what degree the alternatives affect hazardous materials usage and management, hazardous waste generation and management, and waste disposal. A substantial increase in the quantity or toxicity of hazardous substances used or generated would be considered potentially significant. Significant impacts could result if a substantial increase in

human health risk or environmental exposure was generated at a level that cannot be mitigated to acceptable standards.

The potential increase in the throughput of petroleum substances and hazardous waste streams was estimated by evaluating the change from the baseline number of flying hours for each alternative installation and comparing that to the proposed 8,040 annual flying hours. The KC-135 has an estimated fuel flow rate to power the aircraft of approximately 2,500 pounds per hour per engine; or an average of 10,000 pounds of fuel per hour. The KC-46A aircraft has a similar estimated fuel flow rate of 4,500 pounds per hour per engine; or an average of 9,000 pounds of fuel per hour. Thus, based on the percent increase in flying hours at each alternative installation, it was assumed that there would be a commensurate increase in the throughput of petroleum substances and hazardous waste streams.

Regulatory standards and guidelines have been applied in evaluating the potential impacts that may be caused by hazardous materials and wastes. The following criteria were used to identify potentially significant impacts:

- Generation of 100 kilograms (or more) of hazardous waste or 1 kilogram (or more) of an acutely hazardous waste in a calendar month, resulting in increased regulatory requirements.
- A spill or release of a reportable quantity of a hazardous substance as defined by the USEPA in 40 CFR Part 302.
- Manufacturing, use, or storage of a compound that requires notifying the pertinent regulatory agency according to the Emergency Planning and Community Right-to-Know Act.
- Exposure of the environment or public to any hazardous material and/or waste through release or disposal practices.

## **A.10 SOCIOECONOMICS**

### **A.10.1 Definition of the Resource**

Socioeconomics comprises the basic attributes and resources associated with the human environment, particularly population and economic activity. Economic activity typically encompasses employment, personal income, and economic growth. Impacts to these fundamental socioeconomic components also influence other issues such as housing availability and the provision of public services. To illustrate local baseline conditions, socioeconomic data provided in this section consists primarily of county and city level data for the areas surrounding the alternative installations. Where 2010 Census data was not yet available for all demographic and economic data, American Community Survey (ACS) 2011 5-year estimates were used (data on employment and school enrollment).

The ROI for socioeconomics associated with the five alternative installations includes the counties, townships, and towns/cities that each installation lies within, as well as those that lie under or near the current and proposed noise contours. The ROI does not include the land below the airspace used since no ground disturbance would occur in these areas and the Proposed Action would generate minimal changes in noise, frequency of use, duration of use, and number of operations at these locations.

## **A.10.2 Methodology**

Socioeconomic impacts are assessed in terms of direct effects to the local economy and population and related indirect effects on other socioeconomic resources within the ROI. Socioeconomic impacts would be considered significant if the Proposed Action resulted in a substantial shift in population trends or notably affected regional employment, earnings, or community resources such as schools.

## **A.11 ENVIRONMENTAL JUSTICE AND THE PROTECTION OF CHILDREN**

### **A.11.1 Definition of the Resource**

In 1994, EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, was issued to focus the attention of federal agencies on human health and environmental conditions in minority and low-income communities. EO 12898 aims to ensure that disproportionately high and adverse human health or environmental effects to these communities are identified and addressed. This environmental justice analysis focuses on the distribution of race and poverty status in areas potentially affected by implementation of the Proposed Action.

For the purpose of this analysis, minority populations and low-income populations are defined as:

- *Minority Populations:* All categories of non-white population groups as defined in the U.S. Census, including African American, Hispanic, American Indian and Alaska Native, Asian or Pacific Islander, and other groups.
- *Low-Income Populations:* Persons living below the poverty level, as defined by the 2010 Census.

Because children may suffer disproportionately from environmental health risks and safety risks, EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, was introduced in 1997 to prioritize the identification and assessment of environmental health and safety risks that may affect children, and to ensure that federal agency policies, programs, activities, and standards address environmental and safety risks to children. This section

identifies the distribution of children and locations where the number of children in the affected area may be disproportionately high (e.g., schools, childcare centers).

The ROI for environmental justice associated with the five alternative installations includes the counties, townships, and towns/cities that each installation lies within, as well as those that lie under or near the current and proposed noise contours. Total population, minority population, and number of children under the age of 18 were obtained from the 2010 census data. Low-income population numbers are from the 2007-2011 ACS 5-Year Estimates. The ROI does not include the land below the airspace used since no ground disturbance would occur in these areas and the Proposed Action would generate minimal changes in noise, frequency of use, duration of use, and number of operations at these locations.

#### **A.11.2 Methodology**

To comply with EO 12898, *Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations*, and EO 13045, *Protection of Children from Environmental Health Risks and Safety Risks*, areas containing relatively high disadvantaged or youth populations are given special consideration regarding potential impacts in order to address the potential for disproportionately high or adverse human health or environmental effects to these communities. Ethnicity and poverty status in the vicinity of the Proposed Action have been examined and compared to city, county, state, and national data to determine if any minority or low-income communities could potentially be disproportionately affected by implementation of any of the alternatives. Geographic Information Systems census block data obtained from the U.S. Census Bureau was used to obtain information on minority and low-income populations located within the vicinity of the Alternative locations. A census block is the smallest geographic unit used by the U.S. Census Bureau for tabulation of 100 percent data (data collected from all houses, rather than a sample of houses).

Three criteria must be met for impacts to minority and low-income communities to be considered significant: (1) there must be one or more such populations within the ROI, (2) there must be adverse (or significant) impacts from the Proposed Action, and (3) the environmental justice populations within the ROI must bear a disproportionate burden of those adverse impacts. If any of these criteria are not met, then impacts with respect to environmental justice would not be significant.

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**Appendix B**

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***Correspondence***



## TABLE OF CONTENTS

### APPENDIX B CORRESPONDENCE

<b>APPENDIX B1</b>	<b>INTERAGENCY AND INTERGOVERNMENTAL COORDINATION FOR ENVIRONMENTAL PLANNING (IICEP).....</b>	<b>B1-1</b>
	Scoping IICEP Letter Distribution List .....	B1-1
	Sample Scoping IICEP Letter .....	B1-6
	Forbes ANGSIICEP Letter Distribution List.....	B1-9
	Sample Forbes ANGSIICEP Letter .....	B1-10
	Forbes ANGSIICEP Responses .....	B1-12
	JB MDL IICEP Letter Distribution List .....	B1-22
	Sample JB MDL IICEP Letter .....	B1-23
	JB MDL IICEP Responses.....	B1-25
	Pease ANGSIICEP Letter Distribution List .....	B1-30
	Sample Pease ANGSIICEP Letter .....	B1-31
	Pease ANGSIICEP Responses.....	B1-33
	Pittsburgh ANGSIICEP Letter Distribution List .....	B1-56
	Sample Pittsburgh ANGSIICEP Letter.....	B1-57
	Pittsburgh ANGSIICEP Responses .....	B1-59
	Rickenbacker ANGSIICEP Letter Distribution List.....	B1-63
	Sample Rickenbacker ANGSIICEP Letter .....	B1-64
	Rickenbacker ANGSIICEP Responses.....	B1-66
<b>APPENDIX B2</b>	<b>NATIVE AMERICAN CORRESPONDENCE .....</b>	<b>B2-1</b>
	Forbes, JB MDL, and Rickenbacker Tribal Letter Distribution List.....	B2-6
	Sample Forbes, JB MDL, and Rickenbacker Tribal Letter .....	B2-7
	Forbes and Rickenbacker Tribal Letter Distribution List .....	B2-18
	Sample Forbes and Rickenbacker Tribal Letter.....	B2-19
	Forbes Tribal Letter Distribution List.....	B2-27
	Sample Forbes Tribal Letter .....	B2-28
	JB MDL Tribal Letter Distribution List.....	B2-33
	Sample JB MDL Tribal Letter .....	B2-34
	Pease Tribal Letter Distribution List.....	B2-42
	Sample Pease Tribal Letter .....	B2-43
	Pittsburgh Tribal Letter Distribution List .....	B2-48
	Sample Pittsburgh Tribal Letter.....	B2-49
	Rickenbacker Tribal Letter Distribution List.....	B2-54
	Sample Rickenbacker Tribal Letter .....	B2-55
	Tribal Letter Responses .....	B2-61
<b>APPENDIX B3</b>	<b>STATE HISTORIC PRESERVATION OFFICE (SHPO) CORRESPONDENCE .....</b>	<b>B3-1</b>
	Forbes ANGSIICEP Section 106 SHPO Consultation Letter.....	B3-1
	Forbes ANGSIICEP Section 106 SHPO Consultation Response.....	B3-7
	JB MDL Section 106 SHPO Consultation Letter .....	B3-8
	JB MDL Section 106 SHPO Consultation Response .....	B3-15
	Pease ANGSIICEP Section 106 SHPO Consultation Letter .....	B3-19

	Pease ANGS Section 106 SHPO Consultation Response.....	B3-25
	Pittsburgh ANGS Section 106 SHPO Consultation Letter .....	B3-28
	Rickenbacker ANGS Section 106 SHPO Consultation Letter .....	B3-34
<b>APPENDIX B4</b>	<b>RELEVANT HISTORIC CORRESPONDENCE .....</b>	<b>B4-1</b>
<b>APPENDIX B5</b>	<b>FINAL EIS DISTRIBUTION LIST .....</b>	<b>B5-1</b>
<b>APPENDIX B6</b>	<b>PUBLIC HEARING TRANSCRIPTS, RESPONSES TO COMMENTS, AND WRITTEN COMMENTS ON THE DRAFT EIS .....</b>	<b>B6-1</b>

**Appendix B1**

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***Interagency and Intergovernmental Coordination  
for Environmental Planning (IICEP)***





The sample IICEP letter following was distributed to the list below:

**Forbes ANG**

Director, Office of Federal Activities, U.S. Environmental Protection Agency, Region 7, 901 N 5th St, Kansas City, KS 66101  
U.S. Fish and Wildlife Service, Kansas Ecological Services Field Office, 2609 Anderson Ave, Manhattan, KS 66502-2801  
Federal Aviation Administration, Central Region, 901 Locust St, Kansas City, MO 64106-2641  
Kansas Department of Health and Environment, Division of Environment, 1000 SW Jackson, Ste 400, Topeka, KS 66612-1367  
Kansas Department of Wildlife and Parks, Region 2, 300 SW Wanamaker Rd, Topeka, KS 66606  
Jennie Chinn, State Historic Preservation Officer, Kansas State Historical Society, Cultural Resources Division, 6425 SW 6th Ave, Topeka, KS 66615-1099  
Director of Aviation, Kansas Department of Transportation, Dwight D. Eisenhower State Office Building, 700 SW Harrison, Topeka, KS 66603-3754  
Shelly Buhler, Chair, Shawnee County Commissioner, District 1, 200 SE 7th St, Topeka, KS 66603  
Shawnee County Planning Department, 1515 NW Saline St, Ste 102, Topeka, KS 66618  
The Honorable Bill Buntin, Mayor of Topeka, 215 SE 7th, Room 352, Topeka, KS 66603-3914  
Larry Wolgast, Councilperson, Topeka City Council District #5, 1512 SW 30th St, Topeka, KS 66611  
City of Topeka Planning, 620 SE Madison, Topeka, KS 66607  
Eric Johnson, Metropolitan Topeka Airport Authority, Forbes Field, Building 620, Topeka, KS 66619  
Steve Ortiz, Council Chair, Prairie Band Potawatomi Tribe, 16281 Q Rd, Mayetta, KS 66509  
Rick Campbell, Director, Environmental Department, Sac and Fox Nation of Missouri, 305 N Main St, Reserve, KS 66434  
The Honorable Jerry Moran, U.S. Senate, 354 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Pat Roberts, U.S. Senate, 109 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Lynn Jenkins, House of Representatives, 1027 Longworth HOB, Washington, DC 20515  
The Honorable Vicki Schmidt, Kansas Senate, 5906 SW 43rd Ct, Topeka, KS 66610-1632  
The Honorable Lana Gordon, Kansas House of Representatives, 5820 SW 27th St, Topeka, KS 66614  
The Honorable Sam Brownback, Office of the Governor, 300 SW 10th Ave, Ste 241S, Topeka, KS 66612-1590  
Kelli Mosteller, THPO, Citizen Potawatomi Nation, 1601 S. Gordon Cooper Drive, Shawnee, OK 74801  
John Barrett, Chairman, Citizen Potawatomi Nation, 1601 S. Gordon Cooper Drive, Shawnee, OK 74801  
Dr. Brice Obermeyer, Delaware Nation, Dept. of Sociology and Anthropology, Emporia State University, Roosevelt Hall, Rm 121, 1200 Commercial, Box 4022, Emporia, KS 66801  
Kerry Holton, President, Delaware Nation, P.O. Box 825, Anadarko, OK 73005  
Guy Munroe, Chairman, Kaw Nation, Drawer 50, Kaw City, OK 74641  
Dr. Andrea A. Hunter, THPO, Osage Nation of Oklahoma, 627 Grandview, Pawhuska, OK 74056  
Mr. John D. Redeagle, Principal Chief, Osage Nation of Oklahoma, P.O. Box 779, 627 Grandview, Pawhuska, OK 70456  
George Blanchard, Governor, Absentee Shawnee Tribe of Oklahoma, 2025 S. Gordon Cooper Drive, Shawnee, OK 74801  
Henryetta Ellis, THPO, Absentee Shawnee Tribe of Oklahoma, 2025 S. Gordon Cooper Drive, Shawnee, OK 74801  
Glenna Wallace, Chief, Eastern Shawnee Tribe of Oklahoma, 12755 South 705 Rd., Wyandotte, OK 74370  
Leslie Standing, President, Wichita and Affiliated Tribes, P.O. Box 729, Anadarko, OK 73005

**JB MDL**

Eric Davis, Supervisor, U.S. Fish and Wildlife Service, New Jersey Ecological Services Field Office, 927 N Main St, Bldg D, Pleasantville, NJ 08232  
Environmental Review Coordinator, U.S. Environmental Protection Agency, Region 2, 290 Broadway, New York, NY 10007-1866  
Richard Shaw, State Soil Scientist, Natural Resources Conservation Service, New Jersey State Office, 220 Davidson Ave, 4th Floor, Somerset, NJ 08873  
Paul Phifer, Ph.D., Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, Region 5, 300 Westgate Center Dr, Hadley, MA 01035-9589

Ruth W. Foster, New Jersey Department of Environmental Protection, Office of Permit Coordination and Environmental Review, 401 E State St, PO Box 420, Trenton, NJ 08625  
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New Jersey Division of Fish and Wildlife, Endangered and Nongame Species Program, Department of Environmental Protection, PO Box 420, Trenton, NJ 08625-420  
Ernie Deman, Supervising Environmental Specialist, New Jersey Pinelands Commission, 15 Springfield Rd, New Lisbon, NJ 08064  
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Mary Pat Robbie, Director, Resource Conservation, Burlington County, PO Box 6000, Mount Holly, NJ 08060  
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Dwayne Perry, Chief, Ramapough Mountain Indians, 189 Stag Hill Rd, Mahwah, NJ 07430  
Joanne Bundy Hawkins, Powhattan-Renape Nation, Rankokus Indian Reservation, PO Box 225, Rancocas, NJ 08073  
The Honorable Thomas Harper, Mayor of Wrightstown, 21 Saylor's Pond Rd, Wrightstown, NJ 08562  
The Honorable Ronald Francioli, Mayor of New Hanover Township, 1000 Route 10, PO Box 250, Whippany, NJ 07981  
The Honorable Jim Durr, Mayor of North Hanover Township, 41 Schoolhouse Rd, Jacobstown, NJ 08562  
The Honorable David Patriarca, Mayor of Pemberton Township, 500 Pemberton-Browns Mills Rd, Pemberton, NJ 08068-1539  
The Honorable Denis McDaniel, Mayor of Springfield Township, PO Box 119, Jobstown, NJ 08041  
The Honorable Michael Reina, Mayor of Jackson Township, 95 W Veterans Hwy, Jackson, NJ 08527  
The Honorable Mike Fressola, Mayor of Manchester Township, 1 Colonial Dr, Manchester, NJ 08759  
The Honorable David Leutwyler, Mayor of Plumsted Township, 121 Evergreen Rd, New Egypt, NJ 08533  
The Honorable Frank Lautenberg, U.S. Senate, 141 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Robert Menendez, U.S. Senate, 528 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Jon Runyun, House of Representatives, 1239 Longworth HOB, Washington, DC 20515  
The Honorable Chris Smith, House of Representatives, 2373 Rayburn House Office Building, Washington, DC 20515  
The Honorable Chris Christie, Office of the Governor, PO Box 001, Trenton, NJ 08625  
The Honorable Samuel Thompson, New Jersey Senate, 2501 Highway 516, Ste 101, Old Bridge, NJ 08857  
The Honorable Robert Clifton, New Jersey Assembly, 516 Route 33 West, Bldg 2, Ste 2, Millstone, NJ 08535  
The Honorable Ronald Dancer, New Jersey Assembly, 405 Rt 539, Cream Ridge, NJ 08514  
Kerry Holton, President, Delaware Nation, PO Box 825, Anadarko, OK 73005  
Wayne Stull, Trust Board Chairman  
Delaware Tribe of Indians, 170 NE Barbara St., Bartlesville, OK 74006  
Kimberly Vele, President, Stockbridge-Munsee Community, N8476 Mo He Con Nuck Road, Bowler, WI 54416  
Sherry White, THPO, Stockbridge-Munsee Community, N8476 Mo He Con Nuck Road, Bowler, WI 54416

#### **Pease ANG5**

U.S. Environmental Protection Agency, Region 1, Environmental Impact Branch 1, Congress St, Boston, MA 02114  
Northeast Coordinator, U.S. Fish and Wildlife Service Region V, 300 Westgate Center Dr, Hadley, MA 01035  
New Hampshire Department of Environmental Services, 29 Hazen Dr, PO Box 95, Concord, NH 03302  
New Hampshire Fish and Game Department, 11 Hazen Dr, Concord, NH 03301  
New Hampshire State Port Authority, 555 Market St, Portsmouth, NH 03801  
Historic Preservation Officer, New Hampshire Division of Historical Resources, 19 Pillsbury St, 2nd Fl, Concord, NH 03301  
New Hampshire Department of Transportation, Bureau of Environment, JOM Building, Room 160, 7 Hazen Dr, Concord, NH 03302  
New Hampshire Coastal Program, Department of Environmental Services, 50 International Dr, Ste 200, Portsmouth, NH 03801  
New Hampshire Office of Energy and Planning, 57 Regional Dr, Ste 3, Concord, NH 03301  
New Hampshire Department of Environmental Services, Wetlands Bureau, PO Box 95, Concord, NH 03302

Town of Newington Planning Department, 205 Nimble Hill Rd, Newington, NH 03801  
Portsmouth City Hall, Community Development Department, 1 Junkins Ave, Portsmouth, NH 03801  
Pease Development Authority, 360 Corporate Dr, Portsmouth, NH 03801  
Kirk Francis, Tribal Chief, Penobscot Indian Nation, 12 Wabanaki Way, Indian Island, ME 04668  
Bonnie Newsom, THPO, Penobscot Indian Nation, 12 Wabanaki Way, Indian Island, ME 04468  
The Honorable Kelly Ayotte, U.S. Senate, 144 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Jeanne Shaheen, U.S. Senate, 520 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Carol Shea-Porter, House of Representatives, 1530 Longworth House Office Bldg, Washington, DC 20515  
The Honorable Martha Clark, New Hampshire Senate, State House, Room 115, 107 N Main St, Concord, NH 03301  
The Honorable Joe Scarlotto, New Hampshire Representative, 130 Oxford Ave, Portsmouth, NH 03801-4126  
The Honorable Eric Spear, Mayor of Portsmouth, 1 Junkins Ave, Portsmouth, NH 03801  
The Honorable Maggie Hassan, Office of the Governor, State House, 107 N Main St, Concord, NH 03301

### **Pittsburgh ANG**

Doug McLearen and Ms. Kira Heinrich, Archaeology & Protection Division, Pennsylvania Historical and Museum Commission - Bureau for Historic Preservation, Commonwealth Keystone Bldg, 400 North St, Harrisburg, PA 17120  
Carole Copeyon, Endangered Species Program Supervisor, U.S. Fish and Wildlife Service, Pennsylvania Field Office, 315 S Allen St, Ste 322, State College, PA 16801  
Kathy Frankel, Natural Resource Program Supervisor, Pennsylvania Department of Conservation and Natural Resources, 301 Fifth Ave, Ste 324, Pittsburgh, PA 15222-2420  
Susan McDonald, Environmental Specialist, Federal Aviation Administration, Harrisburg Airports District Office, 3905 Hartzdale Dr, Ste 508, Camp Hill, PA 17011  
Jeffrey Ziegler, Assistant Township Manager, Moon Township Administration Office, 1000 Beaver Grade Rd, Moon Township, PA 15108  
Christopher Caruso, Planning Administrator, Township of Findlay, 1271 Route 30, PO Box W Clinton, PA 15026  
Rich Belotti, Director, Planning & Environmental Affairs, Pittsburgh International Airport, Landside Terminal, 4th Floor Mezzanine, PO Box 12370, Pittsburgh, PA 15231-0370  
Craig Peters, Commander, 911th Air Wing, U.S. Air Force Reserve, Pittsburgh International Airport, 2475 Defense Ave, Coraopolis, PA 15108-2983  
Bud Jameson, Jr., Commander, 316th Expeditionary Sustainment Command, 99 Soldiers Ln Coraopolis, PA 15108-2550  
Scott A. Hans, Chief, Regulatory Branch, U.S. Army Corps of Engineers, 2200 William S. Moorhead Federal Building, 1000 Liberty Ave, Pittsburgh, PA 15222-4186  
Barbara Rudnick, NEPA Team Leader, U.S. Environmental Protection Agency, Region 3, Office of Environmental Programs (3EA30), Environmental Assessment and Innovation Division, 1650 Arch St, Philadelphia, PA 19103-2029  
Bradley D. Penrod, President and Chief Strategy Officer, Allegheny County Department of Aviation, Pittsburgh International Airport, PO Box 12370, Pittsburgh, PA 15231-0370  
Sandra Etzel, Allegheny County Health Department, Air Quality Program, 301 39th St, Bldg 7, Pittsburgh, PA 15201  
Lou Sitio, Assistant Chief of Public Affairs, U.S. Army Corps of Engineers, North Atlantic Division, 302 General Lee Ave, Brooklyn, NY 11252  
The Honorable Robert Casey, Jr., U.S. Senate, 393 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Patrick Toomey, U.S. Senate, 502 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Matt Smith, Pennsylvania Senate, Senate Box 203037, Harrisburg, PA 17120-3037  
The Honorable Mark Mustio, Pennsylvania House of Representatives, 1009 Beaver Grade Rd, Ste 220, Moon Township, PA 15108  
The Honorable Anthony Celeste, Mayor of Coraopolis, 1121 Third Ave, Coraopolis, PA 15108  
The Honorable Tom Corbett, Office of the Governor, 301 5th Ave, Rm 240, Pittsburgh, PA 15222  
The Honorable Tim Murphy, House of Representatives, 2332 Rayburn House Office Bldg, Washington, DC 20515  
Melinda Maybee, Nation Representative, Cayuga Nation of New York, PO Box 803, Seneca Falls, NY 13148

Irving Powless, Chief, Onondaga Nation of New York, RRT#1, PO Box 319-B, Nedrow, NY 13120  
Leo Henry, Chief, Tuscarora Nation of New York, 2006 Mt. Hope Rd., Lewiston, NY 14092  
Robert Odawi Porter, President, Seneca Nation of Indians, 12837 Rte. 438, Irving, NY 14081  
Lana Watt, THPO, Seneca Nation of Indians, 90 Ohi Yoho Way, Salamanca, NY 14779  
Roger Hill, Chief, Tonawanda Band of Seneca, 7027 Meadville Road, Basom, NY 14013

### **Rickenbacker ANG**

Teresa Spagna, U.S. Army Corps of Engineers, Huntington District, 502 Eighth St, Huntington, WV 25701-2070  
Lisa Adkins, Program Coordinator, Ohio Historic Preservation Office, 800 E 17th Ave, Columbus, OH 43211-2474  
Ohio Environmental Protection Agency, Lazarus Government Center, 50 W Town St, Ste 700, Columbus, OH 43215  
U.S. Environmental Protection Agency, Region 5, 77 W Jackson Blvd, Chicago, IL 60604  
Mary Knapp, Field Supervisor, Fish and Wildlife Service, 4625 Morse Rd, Ste 104, Columbus, OH 43230-8355  
Lee Brown, Planning Administrator, Franklin County Economic Development & Planning Department, 150 S Front St, FSL Ste 10, Columbus, OH 43215  
Director of Planning, Columbus Regional Airport Authority, 4600 International Gateway, Columbus, OH 43219  
General Manager, Columbus Regional Airport Authority, Rickenbacker International Airport, Administrative Offices, 7161 Second St, Columbus, OH 43217  
Dan Garver, District Conservationist, Ohio Natural Resource Conservation Service, Pickaway County, Circleville Service Center, 110 Island Rd, Ste D, Circleville, OH 43113-9575  
Glenna Wallace, Chief, Eastern Shawnee Tribe of Oklahoma, PO Box 350, Seneca, MO 64865  
Ohio Department of Health, 246 N High St, Columbus, OH 43215  
Columbus Health Department, 240 Parsons Ave, Columbus, OH 43215  
Ohio Department of Transportation, District 6, 400 E William St, Delaware, OH 43015  
Pickaway County Office of Development and Planning, 124 W. Franklin St, Circleville, OH 43113  
Ohio Department of Natural Resources, Division of Geological Survey, 2045 Morse Rd, Bldg C1, Columbus, OH 43229-6693  
Ohio Department of Natural Resources, Division of Wildlife, 2045 Morse Rd, Bldg G, Columbus, OH 43229-6693  
Ohio Department of Natural Resources, Division of Soil & Water, 2045 Morse Rd, Bldg B-3, Columbus, OH 43229-6693  
John Ankrom, Service Director, City of Circleville Planning and Zoning Commission, 104 E Franklin St, Circleville, OH 43113  
Katie Delaney, Federal Aviation Administration, 11677 S Wayne Rd, Ste 107, Romulus, MI 48174  
The Honorable Sherrod Brown, U.S. Senate, 713 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Rob Portman, U.S. Senate, 448 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Steve Stivers, House of Representatives, 1022 Longworth HOB, Washington, DC 20515  
The Honorable Heather Bishoff, Ohio House of Representatives, 77 S High St, 10th Fl, Columbus, OH 43215  
The Honorable Kevin Bacon, Ohio Senate, 1 Capitol Square, Ground Floor, Columbus, OH 43215  
The Honorable John Kasich, Office of the Governor, 77 S High St, 30th Fl, Columbus, OH 43215-6117  
The Honorable Michael Coleman, Mayor of Columbus, City Hall, 2nd Fl, 90 W Broad St, Columbus, OH 43215  
Kelli Mosteller, THPO, Citizen Potawatomi Nation, 1601 S. Gordon Cooper Drive, Shawnee, OK 74801  
John Barrett, Chairman, Citizen Potawatomi Nation, 1601 S. Gordon Cooper Drive, Shawnee, OK 74801  
Dr. Brice Obermeyer, Delaware Nation, Dept. of Sociology and Anthropology, Emporia State University, Roosevelt Hall, Rm 121, 1200 Commercial, Box 4022, Emporia, KS 66801  
Kerry Holton, President, Delaware Nation, P.O. Box 825, Anadarko, OK 73005  
Steve Ortiz, Chairperson, Prairie Band of Potawatomi Nation, 16281 Q Road, Mayetta, KS 66509  
Harold Frank, Chairman, Forest County Potawatomi Community, PO Box 340, Crandon, WI 54520  
Kenneth Meshigaud, Chairperson, Hannahville Indian Community, N14911 Hannahville B1 Rd., Wilson, MI 49896-9728  
George Strack, THPO, Miami Tribe of Oklahoma, PO Box 1326, Miami, OK 74355  
Thomas Gamble, Chairperson, Miami Tribe of Oklahoma, PO Box 1326, Miami, OK 74355-1326  
Ethel E. áá Cooká, Chief, Ottawa Tribe of Oklahoma, P.O. Box 110, Miami, OK 74355  
John P. Froman, Chief, Peoria Tribe of Indians of Oklahoma, P.O. Box 1527, Miami, OK 74355  
Matthew J. Wesaw, Chairman, Pokagon Band of Potawatomi Indians, P.O. Box 180, Dowagiac, MI 49047  
Mike Zimmerman, THPO, Pokagon Band of Potawatomi Indians, P.O. Box 180, Dowagiac, MI 49047

Jody Hayes, Tribe Administrator, Shawnee Tribe, P.O. Box 189, Miami, OK 74355

Ron Sparkman, Chairperson, Shawnee Tribe, P.O. Box 189, Miami, OK 74355

Kade Ferris, THPO, Turtle Mountain Band of Chippewa Indians of North Dakota, P.O. Box 900, Belcourt, ND 58316

Merle St. Claire, Chairman, Turtle Mountain Band of Chippewa Indians of North Dakota, P.O. Box 900, Belcourt, ND 58316

Billy Friend, Chief, Wyandotte Nation, 64700 East Highway 60, Wyandotte, OK 74370

Sherri Clemons, THPO, Wyandotte Nation, 64700 East Highway 60, Wyandotte, OK 74370



## Sample IICEP Letter

**NATIONAL GUARD BUREAU**

3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

20 May 2013

Director, Office of Federal Activities  
U.S. Environmental Protection Agency, Region 7  
901 N 5th St  
Kansas City, KS 66101

Dear Sir/Madam

The United States Air Force (USAF) plans to replace a portion of the existing KC-135 aerial refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF plans to identify locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit. The National Guard Bureau (NGB) is preparing an Environmental Impact Statement (EIS) to analyze the potential impacts of the MOB 2 KC-46A beddown. This letter references the MOB 2 beddown only, as the FTU and MOB 1 beddown are the subject of a separate action.

The NGB proposes to beddown KC-46A aircraft for MOB 2 at one of five alternative locations. The goal of KC-46A beddown is to continue to provide combat-qualified KC-46A personnel to support the regional and global air refueling mission, while replacing a portion of the KC-135 fleet. This action would involve the beddown of one KC-46A squadron consisting of 12 Primary Assigned Aircraft (PAA), and establishing a KC-46A MOB. The NGB has selected five alternative locations for this beddown:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

Concurrent with the beddown of the KC-46A, the existing KC-135 aircraft at the selected installation would either be relocated to another installation and/or would be retired out of the USAF inventory, depending on the age and maintenance status of each aircraft. The beddown of the MOB 2 KC-46A would follow the Total Force Integration (TFI) concept that was enacted into law through the passage of the 2008 Defense Authorization Act, pairing two USAF component units (host and associate) together to operate as one. TFI supports USAF transformation by developing, promoting, and implementing new and creative organizational constructs and by advocating changes in personnel policy that enhance the integration of active, reserve, and civilian work forces. In support of TFI, an active duty associate unit would be

## Sample IICEP Letter

Page 2

integrated with ANG personnel and equipment under any of the action alternatives, enabling joint training and execution of missions using ANG-assigned aircraft. The ANG host unit would be assigned principal responsibility of the physical resources for mission accomplishment (aircraft, equipment, facilities) and the active duty associate unit would share those resources.

As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

The NGB invites you to attend a public scoping meeting at one of the times and locations listed below. For your convenience, the NGB has set aside the 2-4 p.m. sessions for local, state, and federal agencies to attend, although you are also welcome at the 6-9 p.m. session if that meets with your schedule better. The addresses for the public scoping meetings are:

<b>Scoping Meeting #1</b> <b>Tuesday, June 4, 2013</b> <b>2-4 p.m. and 6-9 p.m.</b>  Township of Moon Municipal Building 1000 Beaver Grade Rd. Moon Township, PA	<b>Scoping Meeting #2</b> <b>Tuesday, June 4, 2013</b> <b>2-4 p.m. and 6-9 p.m.</b>  Plumsted Fire District #1 Fire Station 59 Main St. New Egypt, NJ
<b>Scoping Meeting #3</b> <b>Thursday, June 6, 2013</b> <b>2-4 p.m. and 6-9 p.m.</b>  Portsmouth Public Library Levensen Community Meeting Room 175 Parrot Ave. Portsmouth, NH	<b>Scoping Meeting #4</b> <b>Thursday, June 6, 2013</b> <b>2-4 p.m. and 6-9 p.m.</b>  Rickenbacker International Airport Terminal 7161 Second St. Columbus, OH
<b>Scoping Meeting #5</b> <b>Wednesday, June 20, 2013</b> <b>2-4 p.m. and 6-9 p.m.</b>  Museum of the Kansas National Guard 6700 S.W. Topeka Blvd. Topeka, KS	



**Sample IICEP Letter**

Page 3

Please forward your written comments to the KC-46A EIS Project Manager, NGB/A7AM, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil). You may also submit comments via the project website at [www.angkc46aeis.com](http://www.angkc46aeis.com). Submit all comments within 30 days from the date of this letter. Thank you for your assistance.

Sincerely

A handwritten signature in black ink, appearing to read "R. L. Dogan", written in a cursive style.

ROBERT L. DOGAN, GS-13, REM  
Plans and Requirements Branch

The sample IICEP letter following was distributed to the list below:

U.S. Environmental Protection Agency, Region 7, 901 N 5th St, Kansas City, KS 66101  
U.S. Fish and Wildlife Service, Kansas Ecological Services Field Office, 2609 Anderson Ave, Manhattan, KS 66502-2801  
Federal Aviation Administration, Central Region, 901 Locust St, Kansas City, MO 64106-2641  
Kansas Department of Health and Environment, Division of Environment, 1000 SW Jackson, Ste 400, Topeka, KS 66612-1367  
Kansas Department of Wildlife and Parks, Region 2, 300 SW Wanamaker Rd, Topeka, KS 66606  
Shawnee County Planning Department, 1515 NW Saline St, Ste 102, Topeka, KS 66618  
Kansas Department of Transportation, Dwight D. Eisenhower State Office Building, 700 SW Harrison, Topeka, KS 66603-3754  
Shelly Buhler, Shawnee County Commissioner, District 1, 200 SE 7th St, Topeka, KS 66603  
City of Topeka Planning, 620 SE Madison, Topeka, KS 66607  
The Honorable Bill Bunten, Mayor of Topeka, 215 SE 7th, Room 352, Topeka, KS 66603-3914  
Larry Wolgast, Topeka City Council District #5, 1512 SW 30th St, Topeka, KS 66611  
The Honorable Pat Roberts, U.S. Senate, 109 Hart Senate Office Bldg, Washington, DC 20510  
Eric Johnson, Metropolitan Topeka Airport Authority, Forbes Field, Building 620, Topeka, KS 66619  
The Honorable Jerry Moran, U.S. Senate, 354 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Lana Gordon, Kansas House of Representatives, 5820 SW 27th St, Topeka, KS 66614  
The Honorable Lynn Jenkins, House of Representatives, 1027 Longworth HOB, Washington, DC 20515  
The Honorable Vicki Schmidt, Kansas Senate, 5906 SW 43rd Ct, Topeka, KS 66610-1632  
The Honorable Sam Brownback, Office of the Governor, 300 SW 10th Ave, Ste 241S, Topeka, KS 66612-1590



Sample Forbes ANG'S IICEP Letter  
**NATIONAL GUARD BUREAU**  
 3501 FETCHET AVENUE  
 JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

16 Sep 13

Director, Office of Federal Activities  
 U.S. Environmental Protection Agency, Region 7  
 901 N 5th St  
 Kansas City, KS 66101

Dear Sir/Madam

The United States Air Force (USAF) plans to replace the existing KC-135 aerial refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 aircraft beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANG, New Hampshire;
- Pittsburgh ANG, Pennsylvania; and,
- Rickenbacker ANG, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Forbes ANG in Kansas. The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Forbes ANG as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

Sample Forbes ANGSI IICEP Letter

Page 2

At Forbes ANGSI, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 *et seq.*), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989), the NGB is preparing an EIS in support of this action.

Included as an attachment with this letter is a CD that contains the first two chapters of the EIS: the purpose and need for the action, and the Description of the Proposed Action and Alternatives (DOPAA). We invite you to review these two chapters and provide comments. Your comments are important to us, in that they will help us to identify potential issues associated with implementation of the proposal. We will also send you the Draft EIS upon its release, which is anticipated in early 2014. We will continue to send you updates and information related to this action unless you request otherwise.

The NGB previously sent you a letter indicating that a scoping meeting at Forbes ANGSI was to be held Thursday, June 20, 2013 at both 2-4 p.m. and 6-9 p.m. in Topeka, Kansas, and invited you to attend this informational meeting. This letter also documented that the formal scoping period was May 17 through July 5, 2013. Notices for the scoping meeting were posted and published in the *Topeka Capital-Journal* on June 9 and June 16, 2013. If you would like the NGB to consider your comments for inclusion in the Draft EIS, please forward your comments to the KC-46A MOB2 Project Manager, Ms. Anne Rowe, at NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or email to [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil) within 30 days of this notification.

If you have any questions regarding this consultation, please contact Ms. Anne Rowe. She can be reached at (240) 612-8636 or [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil).

Sincerely



ROBERT L. DOGAN, GS-13, REM  
Plans and Requirements Branch

Bureau of Environmental Health  
1000 SW Jackson St, Ste 330  
Topeka, KS 66612-1365



Phone: 785-296-1560  
Fax: 785-296-0984  
BEH@kdehs.gov

Robert Moser, MD, Secretary

Department of Health & Environment

Sam Brownback, Governor

October 16, 2013

Robert L. Dogan, GS-13, REM  
National Guard Bureau  
Plans and Requirements Branch  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Mr. Dogan:

This letter is in response to your letter received September 19, 2013 requesting comments regarding the proposed renovation and demolition activities for Forbes Air National Guard Station, in Kansas. This letter concerns asbestos-containing materials which may be present in older buildings.

Many of these older structures contain building materials which may contain asbestos. Common building materials which may be asbestos-containing materials (ACM) that are found in older public and commercial buildings include sprayed-on acoustical ceiling plasters, floor coverings such as vinyl tile and linoleum, siding, roof shingles and associated felts, as well as thermal system insulation on plumbing, boilers and steam piping, and duct work of heating and air-conditioning equipment.

As asbestos was used in more than 3600 different building materials, it is important to identify these materials prior to the start of the renovation or demolition activities. To determine if asbestos-containing materials are present in the building, an inspection for asbestos-containing materials by a trained and accredited asbestos inspector is required by federal EPA asbestos control regulations. Enclosed with this letter is a listing of firms which provide asbestos-related consultation services, including accredited inspections, for your consideration.

Asbestos-containing materials (ACM) are divided into two main categories. Non friable (hard) asbestos-containing materials are not easily damaged and do not readily release airborne asbestos fibers. Non friable ACM may include square floor tile, asphaltic roofing, and asbestos/cement (A/C) siding and shingles. These materials can become friable, and release airborne asbestos fibers, if subjected to sanding, grinding, sawing, crushing, or pulverizing to a powder.

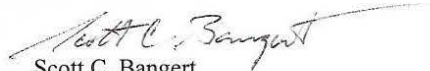
Friable (soft) asbestos-containing materials are easily damaged and, when disturbed, can readily release airborne asbestos fibers. Friable ACM may include sprayed-on acoustical ceiling plasters, thermal insulation on heating and cooling systems, and resilient (no-wax) linoleum. If friable ACM is to be removed or disturbed by the renovation and demolition activities, they must be removed first by specially trained workers.

In Kansas, the removal of friable (soft) ACM must be performed by a Kansas licensed asbestos abatement contractor. These licensed contractors use certified asbestos workers, specialized equipment, and specific work procedures to remove friable ACM. I have enclosed a current listing of Kansas licensed asbestos abatement contractors, if friable ACM is to be removed during the construction activities of this renovation or demolition project.

Written notification of the intent to demolish public or commercial building or structures is required under the EPA asbestos NESHAP regulations (40 CFR Part 61.145). A Demolition Notification Form must be completed for each building or affected structure, and the completed form sent to KDHE, delivered or postmarked **at least 10 working days prior to the start of demolition activities**. Enclosed is the Asbestos Demolition Notification Form (ET-ASB10) for reporting intent to perform demolition for your use.

If you have any additional questions regarding asbestos related issues, please contact me at (785) 296-1689.

Sincerely,

  
Scott C. Bangert  
Environmental Scientist  
Radiation and Asbestos Control Section  
Bureau of Environmental Health

SCB:dr

Enclosures

# ARCHITECTURAL/ENGINEERING/CONSULTING FIRMS OFFERING CONSULTING SERVICES FOR ASBESTOS ABATEMENT\*\*

APRIL, 2013

NAME	ADDRESS	CITY	ST	ZIP	PHONE #	INSPECTIONS & SAMPLING	PROJECT DESIGN	PROJECT MONITORING
*ACM Removal, LLC	5900 East Central, Suite 102	Wichita	KS	67208	316-218-3936	YES	YES	YES
ACT	14953 W. 101 <sup>st</sup> Terrace	Lenexa	KS	66215	913-492-1337	YES*	YES	YES
Alfred Benesch & Company	3226 Kimball Avenue	Manhattan	KS	66503-2157	785-539-2202	YES	YES	YES
Allied Environmental Consultants, Inc.	PO Box 234	Wichita	KS	67201-0234	316-262-5698	YES	YES	YES
American Metropolitan Environmental, Inc.	2713 W. Esthner Avenue	Wichita	KS	67213	316-942-6323	YES	YES	YES
Apex Environmental Consultants, Inc.	14955 W. 101 <sup>st</sup> Terrace	Lenexa	KS	66215	913-338-2739	YES	YES	YES
Burns & McDonnell	9400 Ward Parkway	Kansas City	MO	64114	816-333-9400	YES	YES	YES
Dalrymple Consulting, Inc.	7841 SW 12 <sup>th</sup> Street	Topeka	KS	66615-1406	785-273-0345	YES	YES	YES
Environmental Technical Services	7881 W 156 <sup>th</sup> Street	Overland Park	KS	66223-2947	913-244-5706	YES	YES	YES
iSi Environmental Services	215 S. Laura	Wichita	KS	67211	316-264-7050	YES	YES	YES
IHI Environmental	3000 Youngfield St, Ste 105	Wheat Ridge	CO	80235	303-980-8749	YES	YES	YES
Kingston Environmental Services ISO 14001 Certified, NVLAP & AIHA Certified Laboratory	15450 Hangar Road	Kansas City	MO	64147	816-524-8811	YES*	YES	YES
Milco Environmental Services, Inc.	320 West 4 <sup>th</sup> Street	Colby	KS	67701	785-460-1956	YES	NO	NO
Milco Environmental Services, Inc.	109 East 2 <sup>nd</sup> Street	McCook	NE	69001	308-345-4741	YES	NO	NO
Neil H. Miller & Associates	5900 East Central, Suite 102	Wichita	KS	67208	316-706-5152	YES	YES	YES
Paradigm Group, LLC	PO Box 8200	Wichita	KS	67208	316-239-7097	YES	YES	YES
Precision Testing Laboratories	3703 W. Douglas	Wichita	KS	67213	316-265-0012	YES	YES	YES
Roth Environmental Consultants, Inc.	6600 College Blvd, Suite 220	Overland Park	KS	66211	913-663-9920	YES	YES	YES
Terracon	13910 W. 96 <sup>th</sup> Terrace	Lenexa	KS	66215	913-492-7777	YES	YES	YES
Triad Environmental Services	2000 E. Atkinson PO Box 1507	Pittsburg	KS	66762	620-231-5660	YES	NO	NO
Vac-U-Strip, Inc.	820-B Coronado Drive	Hutchinson	KS	67502	620-669-8791	NO	YES	YES

\*FIRMS WITH LABORATORIES WHICH ANALYZE BULK SAMPLES FOR THE PRESENCE OF ASBESTOS

\*\* THIS LIST WAS COMPILED BY THE KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT TO ASSIST IN THE LOCATION OF FIRMS WHICH PROVIDE ASBESTOS CONSULTATION AND RELATED SERVICES. THIS LIST DOES NOT REPRESENT AN APPROVAL OR RECOMMENDATION BY THE DEPARTMENT OF THE FIRMS LISTED OR SERVICES PROVIDED, NOR DOES THIS LISTING REPRESENT A COMPLETE OR EXCLUSIVE COMPILATION OF AVAILABLE SERVICES.



9/18/2013

**Kansas**  
 Department of Health  
 and Environment

**KANSAS ASBESTOS LICENSED CONTRACTORS**

NAME	ADDRESS	CITY	STATE	ZIP	PHONE
*ACM Removal, LLC	5900 East Central, Suite 102	Wichita	KS	67208	316-684-1800
24/7 Enviro Solutions, Inc.	9312 E. US 24 Highway	Independence	MO	64053	816-252-0659
Abatement Systems, Inc.	PO Box 773	Broken Arrow	OK	74013-0773	918-251-2504
Academy Roofing and Sheet Metal	6361 NE 14th Street	Des Moines	IA	50313	515-964-2345
Advanced Environmental Testing & Abatement, Inc.	803 Ricker Street	Waterloo	IA	50703	319-287-4447
Alamo 1	10843 Gulfdale	San Antonio	TX	78216	210-404-1220
ALM Environmental Services & Construction, LLC	1701 North 2nd Street, Suite #9	Clinton	MO	64735	660-890-8298
Allstate Environmental LLC	6304 E 109th Terrace	Kansas City	MO	64134	816-214-6597
American Pollution Control, Corporation	401 W Admiral Doyle Drive	New Iberia	LA	70560	337-365-7847
AMX Veterans Specialty Services, LLC	2351 W. Northwest Hwy.-Ste 2118	Dallas	TX	75220-8406	214-353-8087
Asbestos Handlers, Inc.	6920 East Reading Place	Tulsa	OK	74115-4637	918-836-5585
Associated Insulation, Inc.	701 Pecan Circle	Manhattan	KS	66502	785-776-0145
AT Abatement Services, Inc.	4915 Stilwell	Kansas City	MO	64120	816-242-0444
B & R Insulation, Inc.	15001 W. 101st Terrace	Lenexa	KS	66215	913-492-1346
Belfor Environmental, Inc.	5075 Kalamath Street	Denver	CO	80221	303-425-7526
Bockmann, Inc.	1420 Centerpark Road	Lincoln	NE	68512	402-423-6631
Brand Energy Solutions, LLC	1325 Cobb International Drive, Suite A-1	Kennesaw	GA	30152	678-285-1408
Brandenburg Industrial Service Company	2625 S Loomis Street	Chicago	IL	60608	312-326-5800
Brock Services, LLC	10343 Sam Houston Park Drive, Ste 200	Houston	TX	77064	281-807-8200
Building Demolition Services	1638 West Street	Wichita	KS	67203	316-214-0905
Clearway Environmental Svs	7920 Ward Parkway	Kansas City	MO	64114	816-802-8480
Colorado Hazard Control, LLC	1775 W 55th Avenue	Denver	CO	80221	303-410-4941
Construction and Abatement Services, Inc.	610 NW Dunlap	Lees Summit	MO	64063	816-524-3233
Cornerstone Services Group LLC	PO Box 1268	Lancaster	PA	17603	717-399-5122
Enviro Remediation	PO Box 75323	Wichita	KS	67275	316-772-7235
Envirological Engineering, Inc.	2070 Peachtree Industrial Ct, Ste 104	Atlanta	GA	30341	770-455-0391
Environmental Action, Inc.	PO Box 1029	Jenks	OK	74037	918-298-4083
Environmental Assurance Co., Inc.	440 Hancock Street	Indianapolis	IN	46222	317-636-8500
Environmental Restoration, LLC	1666 Fabick Drive	Fenton	MO	63026	636-227-7477
Envirotech, Inc.	2737 Papin	St Louis	MO	63103	314-865-1293 ext 17
ESA, Inc.	116 Gateway Drive/PO Box 1370	North Sioux City	SD	57049-1370	605-232-4554
F & H Abatement Services, Inc.	PO Box 250/5003 E 61st North	Kechi	KS	67067	316-264-2208
Forefront Environmental Services	35508 E. Howell Rd	Oak Grove	MO	64075	816-918-3757

NAME	ADDRESS	CITY	STATE	ZIP	PHONE #
Gator Industries, LLC	300 N. Blackoat Rd	Joplin	MO	64801	417-624-4444
GenTech Construction Company, LLC	10350 Richmond Avenue, Ste 910	Houston	TX	77042	713-681-8486
Gerken Environmental Enterprises, Inc.	1528 W. Mt. Vernon	Springfield	MO	65802	417-863-7254
Great Plains Asbestos Control, Inc.	PO Box 39/820 E Railroad Street	Kearney	NE	68848-0039	308-234-3350
Gulf Coast Dismantling, Inc.	PO Box 5249	Pasadena	TX	77508	281-487-0595
Horsley Specialties, Inc.	160 East Main St N./PO Box 1277	Rapid City	SD	57709	605-342-5634
Hudspeth & Associates, Inc.	4775 S. Santa Fe Circle	Englewood	CO	80110	303-791-5563
INSCO Environmental, Inc.	6902 Martindale Rd	Shawnee	KS	66218	913-422-8001
Integrated Solutions, Inc. (dba iSi)	215 S. Laura	Wichita	KS	67211	316-264-7050
Jacobson Asbestos Company	5527 SW 93rd Street	Wakarusa	KS	66546	785-272-6884
Kingston Environmental Services, Inc.	15450 Hangar Road	Kansas City	MO	64147	816-524-8811
Lakeshore Environmental Contractors, LLC	5513 Eastcliff Industrial Loop	Birmingham	AL	35210	205-943-5711
LVI Environmental Services, Inc.	12 Oak Drive	Shawnee	OK	74801	405-273-4800
Major Abatement & Demolition, Inc.	PO Box 487	Blue Springs	MO	64013	816-874-4006
Mark One Electric Co., Inc.	909 Troost	Kansas City	MO	64106	816-842-7023
Mansfield Industrial, Inc.	PO Box 6205	Pensacola	FL	32503	850-477-6437
Mid-America Environmental Solutions	PO Box 737	Carthage	MO	64836	417-358-3599
Midwest Service Group dba Midwest Asbestos Abatement Corporation	560 Turner Blvd	St Peters	MO	63376	636-926-7800
Midwest Steel Company, Inc.	9825 Moers Road	Houston	TX	77075	713-991-7843
NCM Demolition and Remediation, LP	404 N. Berry Street	Brea	CA	92821-3104	714-672-3500
New Horizons Enterprises, LLC	PO Box 681183	Kansas City	MO	64168	816-569-5256
P & M Insulation	2607 Indiana Road	Ottawa	KS	66067	785-242-0904
Pacific Technologies, Inc.	PO Box 4846	Boise	ID	83711	208-344-8668
Patriot Abatement Services, LLC	PO Box 2226	Olathe	KS	66501-2226	913-397-6181
Performance Abatement Services, Inc.	16400 College	Lenexa	KS	66219	913-888-8600
Petrochem Insulation, Inc.	110 Corporate Place	Vallejo	CA	94590	707-644-7455
Piping Technology Company	PO Box 404	McPherson	KS	67460	620-241-3592
Prism Response, Inc.	102 Technology Lane	Export	PA	15632-8903	724-325-3330
Remediation Contractors, Inc.	1114 S. Santa Fe	Wichita	KS	67211-2438	316-269-1549
Sellers & Marquis Roofing Company	8601 E US Highway 40	Kansas City	MO	64129	816-241-2221
SH Environmental Services, Inc.	2250 N Rock Road #118-281	Wichita	KS	67226	281-989-2690
Sunbelt Environmental Services, Inc.	621 N. Prince Lane	Springfield	MO	65802	417-831-5052
W.R. King Contracting, Inc.	7915 W. 51st Street	Overland Park	KS	66202	913-384-4943

Postmark Date \_\_\_\_\_  
For Office Use Only

Form ET-ASB10 (09/12)

Page 1



## KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT ASBESTOS DEMOLITION NOTIFICATION FORM

**GENERAL INSTRUCTIONS:** This Asbestos Demolition Notification Form is to be completed and submitted before a building or structure is to be demolished. **NOTE: IF THE BUILDING OR STRUCTURE CONTAINS FRIABLE ASBESTOS-CONTAINING MATERIALS, THE ASBESTOS NOTIFICATION FORM (ET-ASB8) MUST BE COMPLETED AND SUBMITTED TO THE DEPARTMENT. THIS ASBESTOS DEMOLITION FORM WILL NOT BE ACCEPTED FOR REPORTING THE REMOVAL OF FRIABLE ASBESTOS-CONTAINING MATERIALS FROM BUILDINGS SCHEDULED FOR DEMOLITION.** This form is to be received by the Department not less than 10 working days before the demolition project is scheduled to start. Any notification that is incomplete or any notification indicating site activities to be in violation of applicable regulations will be considered an invalid notification.

Separate notifications must be provided for each building or other individual facility where demolition of said building or facility is to be demolished. Additional copies of this form should be reproduced as needed.

Under most circumstances, the removal of Category I nonfriable asbestos-containing materials will not be required prior to demolition unless the building is to be burned or the materials are considered to be friable. Category II nonfriable asbestos-containing materials must be removed prior to demolition if the materials would be subject to crushing, crumbling or pulverizing during the process of demolition of the building or structure.

Mail the original, signed and completed form to:

KANSAS DEPARTMENT OF HEALTH AND ENVIRONMENT  
BUREAU OF ENVIRONMENTAL HEALTH  
ASBESTOS CONTROL SECTION  
1000 SW JACKSON, SUITE 330  
TOPEKA, KANSAS 66612-1365  
(785) 296-1560

### PART A AUTHENTICATION

I hereby certify that, to the best of my knowledge and understanding, the information provided is complete, true and correct.

Please type or PRINT NAME LEGIBLE \_\_\_\_\_ Title \_\_\_\_\_

Signature \_\_\_\_\_ Date \_\_\_\_\_

Name of Firm \_\_\_\_\_

Telephone No. (\_\_\_\_\_) \_\_\_\_\_

### PART B PROJECT DESCRIPTION

Building/Structure Owner \_\_\_\_\_

Owner Address: Street \_\_\_\_\_

City \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Owner Contact: Name \_\_\_\_\_ Telephone No. (\_\_\_\_\_) \_\_\_\_\_

Building Address: Street \_\_\_\_\_ City \_\_\_\_\_ County \_\_\_\_\_

Present Use: \_\_\_\_\_ Past Use: \_\_\_\_\_ Age of Building: \_\_\_\_\_

Building Floor Space: (sq ft) \_\_\_\_\_ No. of Floors: \_\_\_\_\_

Scheduled Demolition Start \_\_\_\_/\_\_\_\_/\_\_\_\_ Completion \_\_\_\_/\_\_\_\_/\_\_\_\_

Describe how building will be demolished: \_\_\_\_\_

Form ET-ASB10 (09/12)  
Page 2**PART C INSPECTION INFORMATION**

Was an inspection for asbestos conducted for this project? \_\_\_\_\_ Yes \_\_\_\_\_ No

If yes, provide the following information:

Inspector Name \_\_\_\_\_ Date Inspected \_\_\_\_\_

Address \_\_\_\_\_ City \_\_\_\_\_ State \_\_\_\_\_

Telephone No. (\_\_\_\_\_) \_\_\_\_\_

Accreditation by \_\_\_\_\_ Exp. Date \_\_\_\_\_

Provide method used to detect the presence of asbestos material, including analytical methods: \_\_\_\_\_

**PART D DEMOLITION CONTRACTOR INFORMATION**

Contractor: \_\_\_\_\_

Address: \_\_\_\_\_

City: \_\_\_\_\_ State \_\_\_\_\_ Zip \_\_\_\_\_

Contact: \_\_\_\_\_ Telephone No. (\_\_\_\_\_) \_\_\_\_\_

**PART E IDENTIFIED ASBESTOS CONTAINING MATERIALS**

Nonfriable Category I: \_\_\_\_\_ s.f. \_\_\_\_\_ l.f. \_\_\_\_\_ c. yd.

Nonfriable Category II: \_\_\_\_\_ s.f. \_\_\_\_\_ l.f. \_\_\_\_\_ c. yd.

Friable Asbestos \_\_\_\_\_ s.f. \_\_\_\_\_ l.f. \_\_\_\_\_ c. yd.

If friable asbestos-containing materials are present state who will be removing the material and when it will be removed:

If nonfriable Category II asbestos-containing materials are present, briefly state the work practices intended to be used to insure these materials do not become friable (crushed, crumbled, or pulverized):

Is building or structure to be burned? \_\_\_\_\_ Yes \_\_\_\_\_ No If yes, attach a copy of the required approval letter from KDHE. NOTE: All asbestos-containing materials and any additional materials, as required by the Department, must be removed prior to burning.

Was demolition ordered by a Local Government because the structure is structurally unsafe and in danger of imminent collapse? \_\_\_\_\_ Yes \_\_\_\_\_ No If yes, attach copy of the order

**PART F WASTE DISPOSAL**

Disposal Site: \_\_\_\_\_

KDHE Licensed Municipal Solid Waste (Sanitary) or Construction/Demolition (C&amp;D) Landfill Permit Number \_\_\_\_\_

Location: City \_\_\_\_\_ County \_\_\_\_\_ State \_\_\_\_\_

Waste Transporter: \_\_\_\_\_

Division of Environment  
Curtis State Office Building  
1000 SW Jackson St., Suite 400  
Topeka, KS 66612-1367



Phone: 785.296.1535  
Fax: 785.296.8464  
www.kdheks.gov

Robert Moser, MD, Secretary

Department of Health & Environment

Sam Brownback, Governor

Comments by: KDHE

Transmittal Date: October 16, 2013

This form provides notification and the opportunity for your agency to review and comments on this proposed project as required by Executive Order 12372. Review Agency, please complete Parts II and III as appropriate and return to contact person listed below. Your prompt response will be appreciated.

Return To: Ms. Anne Rowe  
KC-46A MOB2 Project Manager  
NBG/A7AM  
Shepperd Hall  
3501 Fetchet Ave.  
Joint Base Andrews, MD 20762-5157

**PART I**

**REVIEW AGENCIES/COMMISSION**

☐ Aging  
☐ Agriculture  
☐ Biological Survey  
☐ Conservation Commission  
☐ Corporation Commission

☐ Education  
☐ Geological Survey, KS  
☒ Health & Environment  
☐ Historical Society  
☐ Social & Rehabilitation

☐ State Forester  
☐ Transportation  
☐ Water Office, KS  
☐ Wildlife & Parks  
☐ Commerce

**PART II**

**AGENCY REVIEW COMMENTS**

COMMENTS: (Attach additional sheet if necessary) Re: KC-46A and MOB 2 location at Forbes Air National Guard Station  
Please see the enclosed comments submitted by Jacqueline Grunau, Bureau of Environmental Remediation and Don Carlson, Bureau of Water. Scott Bangert, Asbestos Section will be sending a letter regarding asbestos information. Travis Daneke noted that BER/Federal Facilities wrote a memo dated May 28, 2013, which outlined the sites in vicinity of the proposed project.

**PART III**

**RECOMMENDED ACTION COMMENTS:**

☒ Clearance of the project should be granted.  
☐ Clearance of the project should not be granted.  
☐ Clearance of the project should be delayed until the issues or questions above have been clarified.  
☐ Request a State Process Recommendation in concurrence with the above comments.

☐ Clearance of the project should not be delayed but the Applicant should (in the final application) address and clarify the question or concerns indicated above.  
☐ Request the opportunity to review final application prior to submission to the federal funding agency.

**DIVISIONS/ AGENCY/ COMMISSION**

John W. Mitchell, Director  
Division of Environment

JWM/df

Bureau of Environmental Remediation  
Curtis State Office Building  
1000 SW Jackson St., Suite 410  
Topeka, KS 66612-1367



phone: 785-296-1682  
fax: 785-296-4823  
jgrunau@kdheks.gov  
www.kdheks.gov

Robert Moser, MD, Secretary

Department of Health and Environment

Sam Brownback, Governor

### MEMORANDUM

**TO:** Donna Fisher  
**FROM:** Jacqueline Grunau  
**DATE:** September 30, 2013  
**RE:** Intergovernmental Agency Review requested by the National Guard Bureau in regards to the potential Beddown Location at Forbes Air National Guard Station in Topeka, Kansas

The Kansas Department of Health and Environment (KDHE), Bureau of Environmental Remediation (BER), Assessment and Restoration Section, Superfund and Drycleaner Remediation Unit has identified one (1) known contaminated drycleaner facility within about three (3) miles of the proposed project.

Site Name	Address	Site ID
Yong's Cleaners	3601 SW Topeka Blvd.	C4-089-70730

Staff member(s) from the National Guard Bureau are welcome to come and view the KDHE-BER files in accordance with the Kansas Open Records Act. If you have any questions, please contact me by telephone at (785) 296-1682 or by e-mail at jgrunau@kdheks.gov.



Division of Environment  
Curtis State Office Building  
1000 SW Jackson St., Suite 400  
Topeka, KS 66612-1367



Phone: 785.296.1535  
Fax: 785.296.8464  
www.kdheks.gov

Robert Moser, MD, Secretary

Department of Health & Environment

Sam Brownback, Governor

October 16, 2013

Ms. Anne Rowe  
KC-46A MOB2 Project Manager  
NBG/A7AM  
Shepperd Hill  
3501 Fetchet Ave.  
Joint Base Andrews, MD 20762-5157

Re: Proposed Action KC-46 Bedown at Air National

Dear Ms. Rowe:

Please see the following comments submitted by Don Carlson, Bureau of Water.

I have no objection to the proposal but offer the following comment for review and consideration:

Any construction activity which disturbs one acre or more is required to file a National Pollutant Discharge Elimination System (NPDES) permit application for stormwater runoff resulting from construction activities. The project owner (party responsible for the project) must obtain authorization from KDHE to discharge stormwater runoff associated with construction activities prior to commencing construction. The Kansas construction stormwater general permit, a Notice of Intent (application form), a frequently asked questions file and supplemental materials are on-line on the KDHE Stormwater Program webpage at [www.kdhe.state.ks.us/stormwater](http://www.kdhe.state.ks.us/stormwater). Answers to questions regarding or additional information concerning construction stormwater permitting requirements can be obtained by calling 785.296.5549.

Sincerely,

Donna Fisher  
Director's Office

DC/df



The sample IICEP letter following was distributed to the list below:

Eric Davis, U.S. Fish and Wildlife Service, New Jersey Ecological Services Field Office, 927 N Main St, Bldg D, Pleasantville, NJ 08232  
U.S. Environmental Protection Agency, Region 2, 290 Broadway, New York, NY 10007-1866, Richard Shaw, Natural Resources Conservation Service, New Jersey State Office, 220 Davidson Ave, 4th Floor, Somerset, NJ 08873  
Paul Phifer, Ph.D., U.S. Fish and Wildlife Service, Region 5, 300 Westgate Center Dr, Hadley, MA 01035-9589  
Ruth W. Foster, New Jersey Dept of Environmental Protection, Office of Permit Coordination and Environmental Review, 401 E State St, PO Box 420, Trenton, NJ 08625  
New Jersey Division of Fish and Wildlife, Endangered and Nongame Species Program, Department of Environmental Protection, PO Box 420, Trenton, NJ 08625-0420  
Ernie Deman, New Jersey Pinelands Commission, 15 Springfield Rd, New Lisbon, NJ 08064  
Burlington County, 50 Rancocas Rd, Mount Holly, NJ 08060  
Mary Pat Robbie, Burlington County, PO Box 6000, Mount Holly, NJ 08060  
Mark Gould, Nanticoke-Lenni-Lenape Indians of New Jersey, 18 E Commerce St, PO Box 544, Bridgeton, NJ 08302  
Dwayne Perry, Ramapough Mountain Indians, 189 Stag Hill Rd, Mahwah, NJ 07430  
Crown Prince Emperor El Bey Bagby Pamunkey Chief, Powhattan-Renape Nation, Rankokus Indian Reservation, PO Box 255, Westampton Township, NJ 08073  
The Honorable Thomas Harper, Mayor of Wrightstown, 21 Saylor's Pond Rd, Wrightstown, NJ 08562  
The Honorable Ronald Francioli, Mayor of New Hanover Township, 1000 Route 10, PO Box 250, Whippany, NJ 07981  
The Honorable Jim Durr, Mayor of North Hanover Township, 41 Schoolhouse Rd, Jacobstown, NJ 08562  
The Honorable David Patriarca, Mayor of Pemberton Township, 500 Pemberton-Browns Mills Rd, Pemberton, NJ 08068-1539  
The Honorable Denis McDaniel, Mayor of Springfield Township, PO Box 119, Jobstown, NJ 08041  
The Honorable Michael Reina, Mayor of Jackson Township, 95 W Veterans Hwy, Jackson, NJ 08527  
The Honorable Mike Fressola, Mayor of Manchester Township, 1 Colonial Dr, Manchester, NJ 08759  
The Honorable David Leutwyler, Mayor of Plumsted Township, 121 Evergreen Rd, New Egypt, NJ 08533  
The Honorable Frank Lautenberg, U.S. Senate, 141 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Robert Menendez, U.S. Senate, 528 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Jon Runyun, House of Representatives, 1239 Longworth HOB, Washington, DC 20515  
The Honorable Chris Smith, House of Representatives, 2373 Rayburn House Office Building, Washington, DC 20515  
The Honorable Chris Christie, Office of the Governor, PO Box 001, Trenton, NJ 08625  
The Honorable Samuel Thompson, New Jersey Senate, 2501 Highway 516, Ste 101, Old Bridge, NJ 08857  
The Honorable Robert Clifton, New Jersey Assembly, 516 Route 33 West, Bldg 2, Ste 2, Millstone, NJ 08535  
The Honorable Ronald Dancer, New Jersey Assembly, 405 Rt 539, Cream Ridge, NJ 08514



Sample JB MDL IICEP Letter  
**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

16 Sep 13

Environmental Review Coordinator  
U.S. Environmental Protection Agency, Region 2  
290 Broadway  
New York, NY 10007-1866

Dear Sir/Madam

The United States Air Force (USAF) plans to replace the existing KC-135 aerial refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 aircraft beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including JB MDL in New Jersey. The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at JB MDL as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

## Sample JB MDL IICEP Letter

Page 2

At JB MDL, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 *et seq.*), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989), the NGB is preparing an EIS in support of this action.

Included as an attachment with this letter is a CD that contains the first two chapters of the EIS: the purpose and need for the action, and the Description of the Proposed Action and Alternatives (DOPAA). We invite you to review these two chapters and provide comments. Your comments are important to us, in that they will help us to identify potential issues associated with implementation of the proposal. We will also send you the Draft EIS upon its release, which is anticipated in early 2014. We will continue to send you updates and information related to this action unless you request otherwise.

The NGB previously sent you a letter indicating that a scoping meeting at JB MDL was to be held Tuesday, June 4, 2013 at both 2-4 p.m. and 6-9 p.m. in New Egypt, New Jersey, and invited you to attend this informational meeting. This letter also documented that the formal scoping period was May 17 through July 5, 2013. Notices for the scoping meeting were posted and published in the *Asbury Park Press* and *Burlington County Times* on May 26 and June 2, 2013. If you would like the NGB to consider your comments for inclusion in the Draft EIS, please forward your comments to the KC-46A MOB2 Project Manager, Ms. Anne Rowe, at NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or email to [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil) within 30 days of this notification.

If you have any questions regarding this consultation, please contact Ms. Anne Rowe. She can be reached at (240) 612-8636 or [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil).

Sincerely



ROBERT L. DOGAN, GS-13, REM  
Plans and Requirements Branch

-----Original Message-----

From: Popolizio, Carlo [[mailto:carlo\\_popolizio@fws.gov](mailto:carlo_popolizio@fws.gov)]

Sent: Friday, September 27, 2013 10:03 AM

To: Rowe, Anne M CTR USAF ANG NGB/A7AM

Subject: National Guard Bureau - Draft EIS - KC-46A refueling tanker

Dear Ms. Rowe:

the USFWS - New Jersey Field Office has no objection to selecting Pease ANG S as the preferred alternative for bed-down of the KC-46A refueling tanker. If you need to contact this office for further coordination on this project, please refer to our project log number 13-CPA-0303.

Best regards, Carlo

--

Carlo Popolizio, Biologist

USFWS-NJFO

927 N. Main Street, Pleasantville NJ 08232

Phone: (609) 383-3938 x 32

Fax: (609) 646-0352

"Sell your cleverness and buy bewilderment." Rumi



Chris Christie  
Governor  
Kim Guadagno  
Lt. Governor

State of New Jersey  
THE PINELANDS COMMISSION  
PO Box 359  
NEW LISBON, NJ 08064  
(609) 894-7300  
www.nj.gov/pinelands

General Information: [Info@njpines.state.nj.us](mailto:Info@njpines.state.nj.us)  
Application Specific Information: [AppInfo@njpines.state.nj.us](mailto:AppInfo@njpines.state.nj.us)



Mark S. Lohbauer  
Chairman  
Nancy Wittenberg  
Executive Director

September 30, 2013

KC-46A MOB2 Project Manager, NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Re: Application # 1991-1149.059  
Joint Base McGuire-Dix-Lakehurst

Dear Applicant:

Thank you for your September 16, 2013 letter asking that the Commission submit comments regarding a proposed Environmental Impact Statement related to the potential location of aerial refueling aircraft at Joint Base McGuire-Dix-Lakehurst (JBMDL). The location of aircraft at JBMDL would not require the completion of an application with the Pinelands Commission. However, the submitted letter indicates that the location of the aircraft at JBMDL may require minor construction, renovation and demolition. Those activities may require the completion of an application with the Pinelands Commission.

The Pinelands Comprehensive Management Plan (CMP) contains many land use and environmental standards. For example, the land use standards of the CMP require that, where feasible, development at military and federal installations be located in that portion of the installation located within the Pinelands Protection Area and avoid the Pinelands Preservation Area District and Forest Area. Examples of CMP environmental standards include a prohibition on most development in wetlands and a required buffer to wetlands, the protection of threatened and endangered plants and animals and stormwater management.

To discuss these standards, you may wish schedule a pre-application conference with our staff. During this conference we can discuss the proposed development and advise of the specific standards of the CMP that appear to be of concern. There is no fee required for a pre-application conference.

Please note that the proposed development requires the completion of an application with the Commission. The CMP requires an application review fee. Applications filed with the Pinelands Commission may not be reviewed or considered complete unless the application review fee and supporting documentation required by the CMP (N.J.A.C. 7:50-1.6) have been submitted.

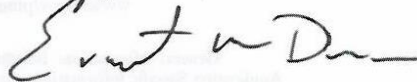
For your convenience, application submissions consisting of letter or legal sized documents and electronically notarized application forms may now be submitted via email to [AppInfo@njpines.state.nj.us](mailto:AppInfo@njpines.state.nj.us). Large reports, plans, checks, and items that have a manually applied seal (i.e., plans, manually notarized items, etc.) must still be submitted as hard copies.

The Pinelands -- Our Country's First National Reserve  
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If you have any questions, please contact the Regulatory Programs staff.

Sincerely,



Ernest M. Deman  
Supervising Environmental Specialist



## SPRINGFIELD TOWNSHIP

2159 Jacksonville-Jobstown Road  
P.O. Box 119  
Jobstown, New Jersey 08041-0119  
(609) 723-2464  
Fax (609) 723-6591

Clerk / Land Use	ext. 10
Police	ext. 20
Tax Collector	ext. 14
Tax Assessor	ext. 19
Construction / Zoning	ext. 21
Manager	ext. 22
Finance	ext. 11

October 16, 2013

Ms. Anne Rowe  
NGB/A7AM  
Shepherd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Ms. Rowe,

Please accept this letter on behalf of the Springfield Township Council as a response to your correspondence dated September 16, 2013. Springfield Township Council would like to offer its support of the beddown of the KC-46A at the JB MDL and further offers its support to the National Guard as well.

After review of your correspondence and the EIS that was provided to the Township, Council agrees that there will be no further environmental impact due to the beddown of the KC-46A in place of the KC-135 at the JB MDL.

Please feel free to contact my office if you need anything further.

Sincerely,

  
Patricia Clayton, RMC  
Township Clerk





**State of New Jersey**

DEPARTMENT OF ENVIRONMENTAL PROTECTION

CHRIS CHRISTIE  
*Governor*

BOB MARTIN  
*Commissioner*

KIM GUADAGNO  
*Lt. Governor*

**Division of Fish and Wildlife**

*P.O. Box 400  
Trenton, NJ 08625-0400  
Dave Chanda, Director*

October 21, 2013

Ms. Anne Rowe,  
KC-46A MOB2 Project Manager,  
NGB/A7AM,  
Shepperd Hall,  
3501 Fetchet Avenue,  
Joint Base Andrews, MD 20762-5157

Dear Ms. Rowe:

The NJ Division of Fish & Wildlife (DFW) appreciates the opportunity to provide comment for the Environmental Impact Statements (EIS's) being prepared for the MOB 1/FTU1 and MOB 2 aircraft beddowns. The NJ DFW feels that the proposed facility additions, new impervious surface areas and changes to the existing fueling infrastructure shown in the "Final Description of the Proposed Action and Alternatives Environmental Impact Statement KC-46A Beddown at Alternative Air National Guard Installations Main Operating Base 2" should have little to no effect on the known nesting area of the Upland Sandpipers, Grasshopper Sparrows and Savannah Sparrows near the center of the runways at McGuire AFB.

In the EIS, a description of other larger aircraft with similar engines using the same runways would be helpful in determining whether or not the replacement the existing KC-135 aerial refueling fleet with the KC-46A would have any effect on the T&E species present.

If we may be of further service, please contact me at (908) 236-2118 or by Email at [kelly.davis@dep.state.nj.us](mailto:kelly.davis@dep.state.nj.us)

Sincerely,

Kelly Davis  
NJ Division of Fish & Wildlife  
Office of Environmental Review

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The sample IICEP letter following was distributed to the list below:

U.S. Environmental Protection Agency, Region 1, 5 Post Office Square, Ste. 100, Boston, MA 02109-3912  
U.S. Fish and Wildlife Service Region V, 300 Westgate Center Dr, Hadley, MA 01035  
New Hampshire Department of Environmental Services, 29 Hazen Dr, PO Box 95, Concord, NH 03302  
New Hampshire Fish and Game Department, 11 Hazen Dr, Concord, NH 03301  
New Hampshire State Port Authority, 555 Market St, Portsmouth, NH 03801  
New Hampshire Department of Transportation, Bureau of Environment, JOM Building, Room 160, 7 Hazen Dr, Concord, NH 03302  
New Hampshire Coastal Program, Department of Environmental Services, 50 International Dr, Ste 200, Portsmouth, NH 03801  
New Hampshire Office of Energy and Planning, 57 Regional Dr, Ste 3, Concord, NH 03301  
New Hampshire Department of Environmental Services, Wetlands Bureau, PO Box 95, Concord, NH 03302  
Town of Newington Planning Department, 205 Nimble Hill Rd, Newington, NH 03801  
Portsmouth City Hall, Community Development Department, 1 Junkins Ave, Portsmouth, NH 03801  
Pease Development Authority, 360 Corporate Dr, Portsmouth, NH 03801  
The Honorable Kelly Ayotte, U.S. Senate, 144 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Jeanne Shaheen, U.S. Senate, 520 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Carol Shea-Porter, House of Representatives, 1530 Longworth House Office Bldg, Washington, DC 20515  
The Honorable Martha Clark, New Hampshire Senate, State House, Room 115, 107 N Main St, Concord, NH 03301  
The Honorable Joe Scarlotto, New Hampshire Representative, 130 Oxford Ave, Portsmouth, NH 03801-4126  
The Honorable Eric Spear, Mayor of Portsmouth, 1 Junkins Ave, Portsmouth, NH 03801  
The Honorable Maggie Hassan, Office of the Governor, State House, 107 N Main St, Concord, NH 03301



Sample Pease ANG S IICEP Letter  
**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

16 Sep 13

U.S. Environmental Protection Agency, Region 1  
5 Post Office Square, Ste. 100  
Boston, MA 02109-3912

Dear Sir/Madam

The United States Air Force (USAF) plans to replace the existing KC-135 aerial refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 aircraft beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANG, New Hampshire;
- Pittsburgh ANG, Pennsylvania; and,
- Rickenbacker ANG, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Pease ANG in New Hampshire. The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Pease ANG as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

---

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

## Sample Pease ANG5 HCEP Letter

Page 2

At Pease ANG5, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 *et seq.*), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989), the NGB is preparing an EIS in support of this action.

Included as an attachment with this letter is a CD that contains the first two chapters of the EIS: the purpose and need for the action, and the Description of the Proposed Action and Alternatives (DOPAA). We invite you to review these two chapters and provide comments. Your comments are important to us, in that they will help us to identify potential issues associated with implementation of the proposal. We will also send you the Draft EIS upon its release, which is anticipated in early 2014. We will continue to send you updates and information related to this action unless you request otherwise.

The NGB previously sent you a letter indicating that a scoping meeting at Pease ANG5 was to be held Thursday, June 6, 2013 at both 2-4 p.m. and 6-9 p.m. in Portsmouth, New Hampshire, and invited you to attend this informational meeting. This letter also documented that the formal scoping period was May 17 through July 5, 2013. Notices for the scoping meeting were posted and published in the *Portsmouth Herald* on May 26 and June 2, 2013. If you would like the NGB to consider your comments for inclusion in the Draft EIS, please forward your comments to the KC-46A MOB2 Project Manager, Ms. Anne Rowe, at NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or email to [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil) within 30 days of this notification.

If you have any questions regarding this consultation, please contact Ms. Anne Rowe. She can be reached at (240) 612-8636 or [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil).

Sincerely



ROBERT L. DOGAN, GS-13, REM  
Plans and Requirements Branch



John P. Bohenko  
City Manager

## CITY OF PORTSMOUTH

City Hall, One Junkins Avenue  
Portsmouth, New Hampshire 03801  
jpb@cityofportsmouth.com  
(603) 610-7201

October 15, 2013

Ms. Anne Rowe  
NGB/AZAM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20162-5157

Dear Ms. Rowe:

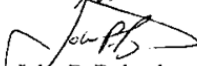
Thank you for the opportunity to comment on the United States Air Force effort to replace the existing KC-135 aerial refueling fleet with the KC-46A. We are pleased that the US Air Force has identified the Pease Air National Guard Station as one of the sites for beddown of this aircraft in the second main operating base (MOB 2) EIS.

Upon review of this document with my staff, this action has the effect of bringing a more modernized tanker fleet and airborne refueling technology to the Pease ANG and with it upgrades and renovations to the Pease facility, where these aircraft would be stationed under this alternative.

By way of this letter, I would like to extend the City's support of the proposed MOB-2 beddown by an Air National Guard unit here in Portsmouth at Pease. It is our understanding that this new aircraft will provide a more effective and versatile tanker design that will better serve the current fleet of aircraft which rely on airborne refueling. The City of Portsmouth has a long tradition of supporting our nation's military and believes the changes proposed with the addition of the KC-46A will continue that proud tradition.

Please let me know if you have any questions as you move ahead with the EIS process and if you require any additional information, please do not hesitate to contact me at (603)610-7202.

Sincerely,



John P. Bohenko  
City Manager

c.: Honorable Mayor Eric Spear and City Council Members



The State of New Hampshire  
**DEPARTMENT OF ENVIRONMENTAL SERVICES**

Thomas S. Burack, Commissioner



October 16, 2013

Ms. Anne Rowe  
KC-46A MOB2 Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

**RE: NHDES COMMENTS – DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS), PORTSMOUTH, NEW HAMPSHIRE – SEPTEMBER 2013**

Dear Ms. Rowe:

The New Hampshire Department of Environmental Services (DES) has completed its review of the subject chapters and provides the enclosed comments for your consideration. The initial drafts of chapters one and two represented the focus of the agency's review. Topics addressed included storm water management, aboveground petroleum management systems and air emissions modeling.

DES would like to thank you for the opportunity to comment on the early stages of the DEIS. It is our intent to continue to serve as a partner in your effort to evaluate the Pease ANGS in Portsmouth, New Hampshire as a beddown site for the KC-46As. If there are questions, please contact me as needed.

Sincerely,

Timothy W. Drew  
Administrator  
Public Information & Permitting  
Office of the Commissioner

Enc.

Cc: Thomas S. Burack, Commissioner, NH DES  
Vicki V. Quiram, Assistant Commissioner, NH DES  
Harry T. Stewart, Director, Water Division, NH DES  
Michael Wimsatt, Director, Waste Management Division, NH DES  
Craig Wright, Director, Air Resources Division, NH DES  
Jeffrey Andrews, Water Division, NH DES  
Gregg Comstock, Water Division, NH DES  
Michael Juranty, Waste Management Division, NH DES  
Michael Fitzgerald, Air Resources Division, NH DES  
Thomas P. Ballestero, Director, Storm Water Center, UNH, Durham NH

DES Web site: [www.des.nh.gov](http://www.des.nh.gov)  
P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095  
Telephone: (603) 271-3503 • Fax: (603) 271-2867 • TDD Access: Relay NH 1-800-735-2964



**DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT  
STATEMENT (DEIS) – KC-46A BEDDOWN (MOB2) – PEASE AIR NATIONAL  
GUARD STATION (ANGS), PORTSMOUTH, NEW HAMPSHIRE – SEPTEMBER 2013**

**NH DES COMMENTS**

October 16, 2013

**Comment 1. Storm Water Management**

Based on the figures in Table 2.3 (total disturbance 117,173 square feet and total new impervious surface 26,865 square feet), the Air National Guard Station (ANGS) will need both the U.S. Environmental Protection Agency (U.S. EPA) Construction General Permit (<http://des.nh.gov/organization/divisions/water/stormwater/construction.htm>) and an NH DES Alteration of Terrain Permit ([http://des.nh.gov/organization/divisions/water/aot/permit\\_aot.htm](http://des.nh.gov/organization/divisions/water/aot/permit_aot.htm)). If the project includes construction dewatering, the ANGS may also need either the Dewatering General Permit (DGP - see <http://www.epa.gov/region1/npdes/dewatering.html>) or the Remediation General Permit (RGP - see <http://www.epa.gov/region1/npdes/rgp.html>), which are typically required for dewatering groundwater containing contaminants. ANGS would not need to address U.S. EPA Municipal Separate Storm Sewer System General Permit (MS4 GP) requirements since Newington is not an MS4, but would need to meet any applicable requirements in the Pease Tradeport's individual National Pollutant Discharge Elimination System Permit (NH0090000) that contains conditions on several storm water outfalls (see attached NPDES Permit).

This additional impervious surface will create the potential for additional pollutant loads to be discharged to the impaired waters in the vicinity, including Great Bay. NH DES suggests that the ANGS's goal should be "hold the loads" for any pollutants for which nearby waters are impaired. This could mean deploying structural Best Management Practices such as the University of New Hampshire's subsurface gravel wetlands or a bioretention hybrid (internal storage volume). If this is considered a federal site or construction project, the ANGS would also need to comply with the storm water management requirements of Section 438 of the

**DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A  
BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS)  
PORTSMOUTH, NEW HAMPSHIRE- SEPTEMBER 2013**

**NH DES Comments  
October 16, 2013  
Page 1 of 3**



Energy Independence and Security Act (see <http://water.epa.gov/polwaste/nps/section438.cfm>). Information on subsurface gravel wetlands can be found in the UNH Stormwater Center's annual report (see <http://unh.edu/unhsc/sites/unh.edu.unhsc/files/docs/UNHSC.2012Report.10.10.12.pdf>) or by contacting the Center (see <http://www.unh.edu/unhsc/contact>). For information on the bioretention hybrids, which are a fairly recent design, however some exist presently in seacoast New Hampshire, contact Dr. Thomas Ballesterio by telephone at (603) 862-1405 or by email at [tom.ballesterio@unh.edu](mailto:tom.ballesterio@unh.edu).

### **Comment 2. Petroleum Management**

The proposed project for modifying the refueling hydrants and lines would be regulated by the NH DES Aboveground Storage Tank (AST) Program (<http://des.nh.gov/organization/divisions/waste/orcb/ocs/astp/index.htm>). This project is detailed on page 2-32 "Project #7", shown on page 2-33 of the DEIS, and discussed at the top of page 2-36. The New Hampshire Air National Guard, Civil Engineering Squadron, is aware of the NH DES AST Program requirements and has been in preliminary contact with Bob Daniel in the Plan Review Subsection to discuss the scope of future improvements. The AST Program welcomes the proposed modifications that would add interstitial monitoring and secondary containment to the hydrants and lines.

### **Comment 3. Air Emissions Analysis**

Based on the NH DES Air Resources Division's (ARD) review of the above referenced project description, we concur that the project is compatible with the plans, programs, and objectives of ARD, and that the project should have no significant environmental impact to local or regional air quality.

ARD conducted modeling to determine potential air emissions, based on the type of aircraft to be used and the number of sorties as noted in the description of the proposed action using the FAA's Emission and Dispersion Modeling System (EDMS). Results are shown below:

#### **Pease Air National Guard Base**

*Emissions for KC-135 vs. Proposed KC-46As*

Aircraft Scenario	Emissions in Tons Per Year				
	CO	NOx	PM	SOx	VOC
KC-135R, CFM56-2A engines, 10,204 sorties	259.9	392.9	4.2	36.9	21.1
KC-46A, PW4062 engines, 12,799 sorties	467.4	359.1	5.6	30.9	139.9
Difference	207.4	-33.8	1.4	-6.1	118.8
Rockingham county total, tons per year*	50,578	8,235	8,458	3,577	7,939

DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A  
BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS)  
PORTSMOUTH, NEW HAMPSHIRE- SEPTEMBER 2013

NH DES Comments  
October 16, 2013  
Page 2 of 3

% change in Rockingham county emissions with KC-46A aircraft and 2,595 additional sorties      0.41%   -0.41%   0.02%   -0.17%   1.50%

Notes:

- 1) Emissions were estimated with EDMS 5.1.4.1
  - 2) A Boeing 767-200ER with PW4062 engines was used to represent the KC-46A
  - 3) A sortie was considered equal to a complete landing-takeoff operation (LTO)
- \* National Emissions Inventory reporting for 2011

As shown, emissions for oxides of nitrogen and sulfate (NO<sub>x</sub> and SO<sub>x</sub>) are expected to decrease, while carbon monoxide (CO), particulate matter (PM) and volatile organic compounds (VOC) emission will increase. However, based on their contribution to area-wide emissions, those originating from aircraft are not expected to have a significant impact on area air quality or attainment status.

During proposed construction activities, we advise that appropriate measures be taken to limit emissions from diesel fueled vehicles. These measures include, but are not limited to:

- Preventing, abating and controlling fugitive dust;
- Limiting idling of construction vehicles.

Potential traffic related impacts due to construction vehicles will be evaluated via the Interagency Consultation Process as outlined in the federal Clean Air Act.

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DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A  
BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS)  
PORTSMOUTH, NEW HAMPSHIRE- SEPTEMBER 2013

NH DES Comments  
October 16, 2013  
Page 3 of 3

Page 1 of 18  
Permit No.: NH0090000

AUTHORIZATION TO DISCHARGE UNDER THE  
NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

In compliance with the provisions of the Federal Clean Water Act, as amended, (33 U.S.C. §§1251 et seq.; the "CWA"),

Pease Development Authority

is authorized to discharge from a facility located at

135 Corporate Drive  
Portsmouth, NH

to receiving waters named: Piscataqua River, Hodgkins Brook, Flagstone Creek, McIntyre Brook, and Harvey's Creek, (Hydrologic Unit code 01060003), all class B waters,

in accordance with effluent limitations, monitoring requirements and other conditions set forth herein.

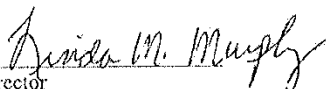
This permit shall become effective on 30 days from the date of signature.

This permit and the authorization to discharge expire at midnight, 5 years from the date of issuance.

This permit supersedes the permit issued on September 30, 1992.

This permit consists of 18 pages in Part I including effluent limitations, monitoring requirements, etc., Attachments A and B, (8 pages and 1 page, respectively); Sludge Compliance Guidance (72 pages) and 35 pages in Part II including General Conditions and Definitions.

Signed this 8 day of August, 2000

  
\_\_\_\_\_  
Director  
Office of Ecosystem Protection  
Environmental Protection Agency  
Boston, MA

## PART I

## A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall 005 (treated wastewater) to the Piscataqua River. This discharge shall be limited and monitored by the permittee as specified below:

Effluent Characteristics	Discharge Limitations			Monitoring Requirements				
	Average Monthly	Average Weekly	Maximum Daily	Average Monthly Report	Average Weekly	Maximum Daily Report	Measurement Frequency	Sample Type
Flow (MGD)							Continuous	Recorder <sub>1</sub>
BOD	300 lbs/day	450 lbs/day	500 lbs/day	30 mg/l	45 mg/l	50 mg/l	2/week	24-hour composite
TSS	300 lbs/day	450 lbs/day	500 lbs/day	30 mg/l	45 mg/l	50 mg/l	2/week	24-hour composite
pH <sub>2</sub>		Range of 6.5 - 8.0 standard units (see I.E.1.a)					1/day	Grab
Fecal Coliform <sub>23</sub>	---	---	---	14/100 ml	14/100 ml	14/100 ml	1/day	Grab
Total Chlorine Residual <sub>4</sub>	---	---	---	0.75 mg/l	---	1.0 mg/l	2/day	Grab
Whole Effluent Toxicity								
LC50 <sub>36</sub>	---	---	---	---	---	≥ 50 %	2/year	24-hour composite
Ammonia Nitrogen as Nitrogen (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Total Recoverable Aluminum (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Total Recoverable Cadmium (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Total Recoverable Chromium (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Total Recoverable Copper (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Total Recoverable Nickel (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Total Recoverable Lead (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Total Recoverable Zinc (mg/l) <sub>7</sub>						Report	2/year	24-hour composite
Trichloroethylene	---	---	---	---	---	Report	2/year	Grab

Samples shall be taken after treatment, but prior to discharge combining with other streams.

See Page 3 for explanation of subscripts.

Page 3 of 18  
Permit No. NH009000

Explanation of subscripts on page 2

- (1) - The effluent flow shall be continuously measured and recorded using a flow meter and totalizer.
- (2) - State certification requirement.
- (3) - Fecal Coliform shall be tested using test method 9222 D or 9221 C E found in Standard Methods for the Examination of Water and Wastewater, 18<sup>th</sup> or subsequent Edition(s), as approved in 40 CFR part 136. The permittee may use membrane filtration, 9222 D, in lieu of, the Most Probable Number, 9221 C E, after it has been demonstrated to the satisfaction of the NHDES-WD that method 9222 D generates comparable results, as per detailed in Standard Methods 9222 D.

The average monthly and average weekly values for fecal coliform shall be determined by calculating the geometric mean and the results reported. Not more than 10 percent of the collected samples (over a monthly period) shall exceed a Most Probable Number (MPN) of 43 per 100 ml for a 5-tube decimal dilution test. Furthermore, all fecal coliform data collected must be submitted with the monthly Discharge Monitoring Reports (DMRs).

- (4) Total Chlorine Residual shall be measured using any one of the following three methods listed below:

- (a) DPD spectrophotometric (colorimetric). EPA no 330.5 or Standard Methods [18<sup>th</sup> or subsequent edition(s)], as approved in 40 Code of Federal Regulations (CFR) part 136], no 4500-Cl G.

- (b) DPD titrimetric (ferrous titrimetric) EPA no. 330.4 or Standard Methods [18<sup>th</sup> or subsequent edition(s)], as approved in 40 CFR part 136], no 4500-Cl F.

- (c) Amperometric titration. EPA no. 330.1 or Standard Methods [18<sup>th</sup> or subsequent edition(s)], as approved in 40 CFR part 136], no 4500-Cl D, or ASTM no. D1253-86(92).

- (5) The whole effluent toxicity (WET) sample shall be taken prior to mixing with the effluent from any other source (the Town of Newington). The permittee shall conduct 48-hour static acute toxicity test on effluent samples using two species, Mysisopsis bahia and Menidia beryllina following the protocol in Attachment A. Toxicity test samples shall be collected and test completed during the 3 month periods ending June 30<sup>th</sup> and September 30<sup>th</sup>, respectively, each year. Toxicity test results are to be submitted by the 15<sup>th</sup> day of the month following the end of the quarter sampled.

This permit shall be modified, or alternatively, revoked and reissued to incorporate additional toxicity testing requirements, including chemical specific limitations, if the results of these toxicity tests indicate the discharge causes an exceedance of any state water quality criterion. Results from these toxicity tests are considered "new information" and the permit may be modified as provided in 40 CFR §122.62(a)(2).

- (6) LC50 is defined as the concentration of wastewater (effluent) that cause mortality to 50 percent of the test organisms. The "50 percent or greater" limitation is defined as a sample which is composed 50% or greater effluent. A sample composed of 50% or greater effluent shall cause no greater than a 50% mortality rate in the effluent sample. This is a maximum daily limit.

- (7) For each whole effluent toxicity test the permittee shall report on the appropriate Discharge Monitoring Report (DMR), the concentrations of the following pollutants: Ammonia Nitrogen as Nitrogen; total recoverable aluminum, cadmium, chromium, copper, lead, nickel, and zinc found in the 100 percent effluent sample. All these aforementioned chemical parameters shall be determined to have at least the minimum quantification level shown in Attachment A on page A-7, or as amended. Also the permittee should note that all chemical parameter results must still be reported in the appropriate toxicity report.

A. EFFLUENT LIMITATIONS AND MONITORING REQUIREMENTS (CON'T.)

2. The discharge shall not cause a violation of the water quality standards of the receiving water.
3. The discharge shall be adequately treated to insure that the surface water remains free from pollutants in concentrations or combinations that settle to form harmful deposits, float as foam, debris, scum, or other visible pollutants. It shall be adequately treated to insure that the surface waters remain free from pollutants which produce odor, color, taste or turbidity in the receiving waters which is not naturally occurring and would render it unsuitable for its designated uses.
4. The permittee's treatment facility shall maintain a minimum of 85 percent removal of both BOD<sub>5</sub> and TSS. The percent removal shall be based on a comparison of average monthly influent versus effluent concentrations.
5. When the effluent discharged for a period of 90 consecutive days exceeds 80 percent of the 1.2 MGD design flow (0.96 MGD), the permittee shall submit to the permitting authorities a projection of loadings up to the time when the design capacity of the treatment facility will be reached, and a program for maintaining satisfactory treatment levels consistent with approved water quality management plans. Before the design flow will be reached, or whenever treatment necessary to achieve permit limits cannot be assured, the permittee may be required to submit plans for facility improvements.
6. All POTWs must provide adequate notice to both EPA and New Hampshire Department of Environmental Services-Water Division (NHDES-WD) of the following:
  - a. Any new introduction of pollutants into the POTW from an indirect discharger in a primary industrial category( see 40 CFR §122 Appendix A, as amended) discharging process water; and
  - b. Any substantial change in the volume or character of pollutants being introduced into that POTW by a source introducing pollutants into the treatment works at the time of issuance of the permit.
  - c. For purposes of this paragraph, adequate notice shall include information on:
    - i. The quality and quantity of effluent introduced into the facility; and
    - ii. any anticipated impact of the change on the quantity or quality of effluent to be discharge from the facility.
7. A user may not introduce into any POTW any pollutant(s) which cause pass through or interference. The terms "user", "pass through" and "interference" are defined in 40 CFR § 403.3.

Page 5 of 18  
Permit No. NH0090000

8. Within 90 days of the effective date of this permit, the permittee shall submit to EPA and NHDES-WD a current list of all industries discharging industrial waste to the municipal wastewater treatment plant. At a minimum, the list shall indicate the name and address of each industry, along with the following information: telephone number; contact person; facility description; production quantity; products manufactured; industrial processes used; chemicals used in processes; existing level of pretreatment; and list of existing discharge permits.
9. Within 90 days of the effective date of this permit, the permittee shall submit to EPA and NHDES-WD a copy of discharge permit(s) issued to each industry discharging industrial waste to the municipal wastewater treatment plant. At a minimum, each permit shall contain the following: effective dates; flow and applicable pollutant limits; self monitoring, reporting, compliance monitoring and inspection provisions; and enforcement criteria. In addition, the permittee shall submit to EPA and NHDES-WD a copy of its current sewer use ordinance and a copy of any other document granting legal authority to issue permits to industries discharging industrial waste to the municipal wastewater treatment plant. If industrial permitting authority does not exist as of the effective date of this permit, the permittee is requested to submit to the NHDES-WD a proposed plan and implementation schedule for adopting such authority and implementing an industrial permitting system. The permittee shall also submit to NHDES and EPA a copy of any agreement between PDA and the City of Portsmouth regarding the responsibility for the operation of the Industrial Pretreatment Program
10. The permittee shall submit to EPA and NHDES-WD the name of any Industrial User (IU) subject to Categorical Pretreatment Standards pursuant to 40 CFR §403.6 and 40 CFR Chapter I, Subchapter N (Parts 405-415; 417-436; 439-440; 443; 446-447; 454-455; 457-461; 463-469; and 471, as amended) who commences discharge to the POTW after the effective date of this permit. This reporting requirement also applies to any other IU that discharges an average of 25,000 gallons per day or more of process wastewater in the POTW (excluding sanitary; noncontact cooling; and boiler blowdown wastewater) or contributes a process wastewater which makes up five (5) percent or more of the average dry weather hydraulic or organic capacity of the POTW; or is designated as such by the control authority as defined in 40 CFR §403.12(a) on the basis that the industrial user has a reasonable potential for adversely affecting the POTW's operation or for violating any pretreatment standard or requirement (in accordance with 40 CFR §403.8(f)(6)).
11. In the event that the permittee receives reports (baseline monitoring reports; 90-day compliance reports; periodic reports on continued compliance, etc.) From users subject to Categorical Pretreatment Standards, the permittee shall forward all copies of these reports within ninety (90) days of their receipt to EPA and NHDES-WD.
12. The permittee shall not discharge into the receiving water any pollutant or combination of pollutants in toxic amounts.



13. The permittee shall provide a copy of the available reports on the effluent concentration from all Groundwater Treatment Systems to the sanitary sewer. If the concentrations of the pollutants in these discharges to the sanitary sewer are less than the Maximum Contaminant Levels required by the Drinking Water regulations, the permittee may certify this condition in writing in lieu of reporting analytical results.
  - a. Quarterly reporting shall begin within 90 days following the effective date of this permit and provide the most current results available.
  - b. Estimates of the average monthly flow and the maximum daily flow at each groundwater treatment system shall be reported for each month.
14. All existing manufacturing, commercial, mining, and silvicultural dischargers must notify the Director as soon as they know or have reason to believe (40 CFR §122.42):
  - a. That any activity has occurred or will occur which would result in the discharge of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - i. One hundred micrograms per liter (100 µg/l);
    - ii. Two hundred micrograms per liter (200 µg/l) for acrolein and acrylonitrile; five hundred micrograms per liter (500 µg/l) for 2,4-dinitrophenol and for 2-methyl-4,6-dinitrophenol; and one milligram per liter (1 mg/l) for antimony;
    - iii. Five (5) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
    - iv. Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and New Hampshire regulations.
  - b. That any activity has occurred or will occur which would result in the discharge, on a non routine or infrequent basis of any toxic pollutant which is not limited in the permit, if that discharge will exceed the highest of the following "notification levels":
    - i. Five hundred micrograms per liter (500 µg/l);
    - ii. One milligram per liter (1 mg/l) for antimony;
    - iii. Ten (10) times the maximum concentration value reported for that pollutant in the permit application in accordance with 40 CFR §122.21(g)(7); or
    - iv. Any other notification level established by the Director in accordance with 40 CFR §122.44(f) and New Hampshire regulations.
  - c. That they have begun or expect to begin to use or manufacture as an intermediate or final product or byproduct any toxic pollutant which was not reported in the permit application.
15. This permit shall be modified, or alternatively, revoked and reissued to include effluent standards or limitation on any pollutants not limited in the permit if the results of an ongoing or future investigation indicates the presence of any toxic pollutant with the reasonable potential to cause water quality violations.

## PART I

## B. STORM WATER LIMITATIONS AND MONITORING REQUIREMENTS

1. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall 001 (storm water runoff from industrial activity) to Hodgkins Brook. Samples shall be collected down stream from the confluence of the two streams near the intersection of Rye Street and Rockingham Drive. This discharge shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow (MGD)	-----	-----	Report	Monthly <sub>1</sub>	Estimate
BOD (mg/l)	----	----	Report	Monthly <sub>1</sub>	Grab <sub>2</sub>
Volatile Organics Scan (mg/l) <sub>3</sub>	----	----	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/l) <sub>4</sub>	----	----	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
pH	Range of 6.5 - 8.0 standard units			Monthly <sub>1</sub>	Grab <sub>2</sub>
Oil & Grease (mg/l) <sub>5</sub>	-----	----	10	Monthly <sub>1</sub>	Grab <sub>2</sub>
Surfactants (mg/l)	0.2	----	----	Monthly <sub>1</sub>	Grab <sub>2</sub>
Total Recoverable Iron (mg/l)	-----	----	Report	Monthly <sub>1</sub>	Grab <sub>2</sub>
Total Recoverable Lead (mg/l)	----	----	Report	Monthly <sub>1</sub>	Grab <sub>2</sub>
Trichloroethylene (mg/l) <sub>6</sub>	-----	----	Report	1/quarter	Grab <sub>2</sub>

There shall be no discharge of floating solids or visible foam.  
 See page 11 for explanation of subscripts

## PART I

## B. STORM WATER LIMITATIONS AND MONITORING REQUIREMENTS

2. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall 002 (storm water runoff from industrial activity) to Flagstone Creek. Samples shall be taken at the culvert outlet at the end of the aircraft apron. This discharge shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow (MGD)	----	----	Report	Monthly <sub>1,7</sub>	Estimate
BOD (mg/l)	----	----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Volatile Organics Scan (mg/l) <sub>3</sub>	----	----	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
Polynuclear Aromatic Hydrocarbons (PAHs) (μg/l) <sub>4</sub>	----	----	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
pH	Range of 6.5 - 8.0 standard units			Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Oil & Grease (mg/l) <sub>3</sub>	-----	-----	10	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Surfactants (mg/l)	0.2	-----	----	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Trichloroethylene (mg/l) <sub>6</sub>	-----	-----	Report	1/quarter	Grab <sub>2</sub>
TSS (mg/l)	-----	-----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
COD (mg/l)	-----	-----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Primary Deicing Chemical (mg/l) <sub>8</sub>	-----	-----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Total Recoverable Arsenic, Iron, and Zinc	-----	-----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>

There shall be no discharge of floating solids or visible foam.  
See Page 11 for explanation of subscripts

## PART I

## B. STORM WATER LIMITATIONS AND MONITORING REQUIREMENTS

3. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall 003 (storm water runoff from industrial activity) to McIntyre Brook. Samples shall be taken at the overflow from the oil water separator and when flow occurs in the bypass channel, collect an additional representative sample downstream for the confluence of both channels. This discharge shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow (MGD)	----	----	Report	Monthly <sub>1,7</sub>	Estimate
BOD (mg/l)	----	----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Volatile Organics Scan (mg/l) <sub>3</sub>	----	----	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/l) <sub>4</sub>	----	----	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
pH	Range of 6.5 - 8.0 standard units			Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Oil & Grease (mg/l) <sub>5</sub>	----	----	10	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Surfactants (mg/l)	0.2	----	----	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Trichloroethylene (mg/l) <sub>6</sub>	----	----	Report	1/quarter	Grab <sub>2</sub>
COD and TSS (mg/l)	----	----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Primary Deicing Chemical (mg/l) <sub>3</sub>	----	----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>
Total Recoverable Iron and Zinc ( mg/l)	----	----	Report	Monthly <sub>1,7</sub>	Grab <sub>2</sub>

There shall be no discharge of floating solids or visible foam.  
See page 11 for explanation of subscripts

## PART I

## B. STORM WATER LIMITATIONS AND MONITORING REQUIREMENTS

4. During the period beginning on the effective date and lasting through the expiration date, the permittee is authorized to discharge from outfall 004 (storm water runoff from industrial activity) to Harveys Creek. This discharge shall be limited and monitored by the permittee as specified below:

<u>Effluent Characteristics</u>	<u>Discharge Limitations</u>			<u>Monitoring Requirements</u>	
	<u>Average Monthly</u>	<u>Average Weekly</u>	<u>Maximum Daily</u>	<u>Measurement Frequency</u>	<u>Sample Type</u>
Flow (MGD)	---	---	Report	Monthly <sub>1</sub>	Estimate
BOD (mg/l)	---	---	Report	Monthly <sub>1</sub>	Grab <sub>2</sub>
Volatile Organics Scan (mg/l) <sub>3</sub>	---	---	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
Polynuclear Aromatic Hydrocarbons (PAHs) (µg/l) <sub>4</sub>	---	---	Report	2/year <sub>1</sub>	Grab <sub>2</sub>
pH	Range of 6.5 - 8.0 standard units			Monthly <sub>1</sub>	Grab <sub>2</sub>
Oil & Grease (mg/l) <sub>5</sub>	---	---	10	Monthly <sub>1</sub>	Grab <sub>2</sub>
Surfactants (mg/l)	0.2	---	---	Monthly <sub>1</sub>	Grab <sub>2</sub>
Trichloroethylene (mg/l) <sub>6</sub>	---	---	Report	1/quarter	Grab <sub>2</sub>
Total Recoverable Cyanide, Iron, Lead, Nickel and Zinc (mg/l)	---	---	Report	Monthly <sub>1</sub>	Grab <sub>2</sub>

There shall be no discharge of floating solids or visible foam.  
See page 11 for explanation of subscripts

Page 11 of 18  
Permit No. NH009000

Explanation of subscripts on pages 7 - 10

- (1) If a sample cannot be collected due to adverse weather conditions, the permittee shall submit with the monthly DMR an explanation of why the sample could not be collected. Adverse conditions that may prohibit the collection of samples include weather conditions that create dangerous conditions for personnel (such as high winds, blizzard conditions, ice storms etc) or otherwise make the collection of a sample impractical.
- (2) Grab samples shall be collected from a discharge resulting from a precipitation event that is greater than 0.1 inches in magnitude and that occurs at least 72 hours from the previously measurable precipitation event. The grab sample should be taken when pollutant concentrations in the storm water are expected to be at a maximum.
- (3) Samples for the Volatile Organics Scan shall be taken during April and September. Volatile Organics are listed in 40 CFR §122, Appendix D, Table II.
- (4) The sample for the Polynuclear Aromatic Hydrocarbons (PAHs) shall be taken concurrently with that for the Volatile Organics Scan. Attachment B contains a list of PAHs for analysis.
- (5) Oil and Grease shall be tested using EPA Method 1664, Revision A. This method was newly approved by EPA on May 14, 1999, and became effective on June 14, 1999, for inclusion in 40 CFR part 136.
- (6) Results from the Volatile Organics Scan for trichloroethylene may be used to satisfy the trichloroethylene sampling for two of the four required sampling events.
- (7) At least two of the sampling events each year shall be designed to occur during the application of deicing materials. These events shall attempt to collect a sample containing the maximum concentrations of deicing agents in the storm water.
- (8) The permittee shall report the primary deicing chemical on the DMR and shall monitor for that chemical when deicing occurs at the facility. The permittee shall also report when the deicing materials are not used.

B. STORM WATER REQUIREMENTS - continued

5. The permittee shall maintain the oil/water separators to ensure proper operation. This shall include controlling the storm water flow rate through each oil/water separator to its maximum design flow rate by installing a continuous recording flow meter and manually controlling the flow through the separator within 180 days after the permit's effective date. Alternately, the permittee may request in writing that the Regional Administrator accept substitution of an alternative method of control for the continuous recording device within 180 days after the permit's effective date.
  - a. By installing a flow reduction or constriction device to prevent the flow through the separator from ever exceeding its maximum design flow rate or,
  - b. By demonstrating to EPA-New England that the operation procedures are sufficiently clear and rigid such that the operators will not exceed the separator's maximum design flow rate by concurrently draining more area(s) into the separator than prescribed in the procedures or;
  - c. By any other means of control that prevents the flow rate from exceeding the maximum design flow rate.

In addition, the permittee shall periodically clean, at a minimum annually, both the sediment/residuals (on the bottom of the separator) and the oil layers (on the top of the water within the separator) to prevent carryover of either layer in the effluent discharged from the oil/water separator. More frequent cleaning as necessary to ensure proper operation

The permittee shall continue to implement the Storm Water Pollution Prevention Plan (SWPPP) at the facility. The permittee shall maintain a SWPPP which includes Best Management Practices. The following minimum components shall be addressed in the plan.

6. The SWPPP shall be prepared in accordance with good engineering practice and shall identify potential sources of pollution which may reasonably be expected to affect the quality of storm water discharges authorized by this permit.
7. The discharges from outfalls 001-004 shall be composed entirely of storm water. The following non-storm water discharges are authorized by this permit provided they are addressed in the SWPPP: fire fighting activities; fire hydrant flushings; potable water sources including waterline flushings; drinking fountain water, uncontaminated compressor condensate; irrigation drainage; lawn watering; routine external building washdown that does not use detergents or other compounds; pavement washwaters where spills or leaks of toxic or hazardous materials have occurred (unless all spilled material has been removed) and where detergents are not used; air conditioning condensates; compressor condensate; uncontaminated springs; uncontaminated ground water; and foundation or footing drains where flows are not contaminated with process materials such as solvents.
6. The SWPPP shall be signed in accordance with the requirements of Part II and be retained on site.



Page 13 of 18  
Permit No. NH0090000

9. The Director, or authorized representative, may notify the permittee at any time that the plan does not meet one or more of the minimum requirements detailed below. Any notification shall identify those provisions of the permit that are not being met by the plan, and identify which provisions of the plan requires modification in order to meet the minimum requirements of this permit. The permittee shall make the required changes within 30 days of a notification and submit to EPA and NHDES a written certification that the required changes have been made.
10. The permittee shall amend the plan whenever there is a change in design construction, operation or maintenance, that has a significant effect on the potential for the discharge of pollutants or if the SWPPP is ineffective in eliminating or significantly minimizing pollutants from the sources identified in the SWPPP.
11. The SWPPP shall consider the following components as a minimum. The permittee may use the EPA's Storm Water Multi-Sector General Permit for Industrial Activities, Federal Register vol. 60, no.189, Friday September 29, 1995, pgs 51215-51219 as guidance. The SWPPP shall contain the following minimum elements:
  - a. Pollution Prevention Team
  - b. Description of potential pollutant sources including information on:
    - i. Drainage
    - ii. Inventory of exposed materials
    - iii. Spills and leaks
    - iv. Sampling data
    - v. Risk identification and summary of potential pollutant sources
  - c. Description of storm water measures and controls including:
    - i. Good house keeping
    - ii. Preventive maintenance
    - iii. Spill prevention and response procedures
    - iv. Source reduction
    - v. Management of runoff
    - vi. Inspections
    - vii. Pollution prevention training
    - viii. Record keeping and internal reporting procedures
    - ix. Identification of non-storm water discharges
    - x. Sediment and erosion control
12. Comprehensive site compliance evaluation shall be performed annually. The evaluation shall include the following:
  - a. Areas contributing to storm water discharges shall be inspected visually for evidence of, or the potential for, pollutants to enter the drainage system. Structural storm water management measures etc. shall be evaluated to ensure proper operation.
  - b. Based on the results of the evaluation, the SWPPP shall be revised, if appropriate, within 2 weeks of the evaluation and shall provide a schedule for timely implementation of any changes to the plan.
  - c. A report of the results of the evaluation shall be made and retained as part of the SWPPP.

C. SLUDGE CONDITIONS

1. The permittee shall comply with all existing federal (40 CFR part 503) and state (Env-Ws 800) laws and regulations that apply to sewage sludge use and disposal practices and with the Clean Water Act Section 405(d) technical standards.

If an applicable management practice or numerical limitation for pollutants in sewage sludge more stringent than existing federal and state regulations is promulgated under section 405(d) of the CWA, this permit shall be modified or revoked and reissued to conform to the promulgated regulations.

2. The permittee shall comply with the more stringent of either the state or federal (40 CFR part 503) requirements.
3. The requirements and technical standards of 40 CFR Part 503 apply to facilities which perform one or more of the following use or disposal practices.
  - a. Land application - the use of sewage sludge to conditions or fertilize the soil
  - b. Surface disposal - the placement of sewage sludge in a sludge only landfill.
  - c. Placement of sludge in a municipal solid waste landfill (see 40 CFR §503.4).
  - d. Sewage sludge incineration in a sludge incinerator.
4. The 40 CFR part 503 conditions do not apply to facilities which place sludge within a municipal solid waste landfill. These conditions also do not apply to facilities which do not dispose of sewage sludge during the life of the permit, but rather treat the sludge (lagoons, reed beds); or are otherwise excluded under 40 CFR §503.6.
5. The permittee shall use and comply with the attached Sludge Compliance Guidance document to determine appropriate conditions. Appropriate conditions contain the following elements:
  - General requirements
  - Pollutant limitations
  - Operation standards (pathogen reduction requirements and vector attraction reduction requirements)
  - Management practices
  - Record keeping
  - Monitoring
  - Reporting

Depending on the quality of material produced by a facility all conditions may not apply to the facility.

Page 15 of 18  
Permit No. NH0090000

6. The permittee shall monitor the pollutant concentrations; pathogen reduction; and vector attraction reduction at the following frequency. This frequency is based upon the volume of sewage sludge generated at the facility in dry metric tons per year.
 

less than 290	1/year
290 to less than 1,500	1/quarter
1,500 to less than 15,000	6/year
15,000 or more	1/month
7. The permittee shall sample the sewage sludge using the procedures detailed in 40 CFR §503.8.
8. The permittee shall submit an annual report containing the information specified in the Sludge Compliance Guidance document. Reports are due annually by February 19<sup>th</sup>. Reports shall be submitted to the addresses contained in Section D of the permit.

Page 16 of 18  
Permit No. NH009000

D. MONITORING AND REPORTING

Monitoring results obtained during the previous month shall be summarized for each month and reported on separate Discharge Monitoring Form(s) (DMRs) postmarked no later than the 15th day of the month following the completed period.

A signed and dated original DMRs and all other reports required herein, shall be submitted to the Director at the following address:

U.S. Environmental Protection Agency  
Water Technical Unit (SEW)  
P.O. Box 8127  
Boston, Massachusetts 02114-8127

Duplicate signed copies of all reports and information required herein shall be submitted to the State of New Hampshire at:

New Hampshire Department of Environmental Services  
Water Division  
Wastewater Engineering Bureau  
6 Hazen Drive, P.O. Box 95  
Concord, NH 03302-0095

Page 17 of 18  
Permit No. NH009000

#### E. STATE PERMIT CONDITIONS

1. The permittee shall comply with the following conditions which are included as State Certification requirements.
  - a. The pH range of 6.5-8.0 Standard Units (S.U.) must be achieved in the final effluent unless the permittee can demonstrate to NHDES-WD: (1) that the range should be widened due to naturally occurring conditions in the receiving water or (2) that the naturally occurring receiving water pH is not significantly altered by the permittee's discharge. The scope of any demonstration project must receive prior approval from NHDES-WD. In no case, shall the above procedure result in pH limits outside of the range of 6.0 to 9.0 S.U., which is the federal effluent limitation guideline regulation for pH for secondary treatment and is found in 40 CFR §133.102(c).
  - b. Pursuant to State Law NH RSA 485-A:13 and the New Hampshire Code of Administrative Rules, Env-Ws 706.08(b) and Env-Ws 904.08 the following submissions shall be made to the NHDES-WD by a municipality proposing to accept into its POTW (including sewers and interceptors):
    - (1) A 'Sewer Connection Permit' request form for:
      - i. Any proposed sewerage, whether public or private;
      - ii. Any proposed wastewater connection or other discharge in excess of 5,000 gallons per day;
      - iii. Any proposed wastewater connection or other discharge to a wastewater treatment facility operating in excess of 80% of design flow capacity; and
      - iv. Any proposed connection or other discharge of industrial wastewater, regardless of quality or quantity.
    - (2) An 'Industrial Discharge Permit Request Application' for any new or increased loadings of industrial waste, as defined in RSA 485-A:2, VI.
  - c. The permittee shall not at any time, either alone or in conjunction with any person or persons, cause directly or indirectly the discharge of waste into the said receiving water unless it has been treated in such a manner as will not lower the legislated water quality classification or interfere with the uses assigned to said water by the New Hampshire Legislature (RSA 485-A:12).
  - d. Any modifications of the Permittee's Sewer-Use Ordinance, including local limitations on pollutant concentrations, shall be submitted to the NHDES-WD for approval prior to adoption by the permittee.
  - e. Within 90 days of the effective date of this permit, the permittee shall submit to NHDES-WD a copy of its current sewer-use ordinance and a copy of any other document granting legal authority to issue permits to industries discharging industrial waste to the municipal wastewater treatment plant.

F. SPECIAL CONDITIONS

1. Whole Effluent Toxicity Test Frequency Adjustment

The permittee may submit a written request to the EPA requesting a reduction in the frequency (to not less than once per year) of the required toxicity testing. This request may be made after completion of a minimum of four successive (4) toxicity tests on the effluent. All of the tests must be valid tests and must demonstrate compliance with the permit limits for whole effluent toxicity. The permittee must continue to perform the testing at the frequency specified in the permit until written notification is received by certified mail from the EPA which indicates that the whole effluent toxicity testing requirement has been changed.

2. pH Limit Adjustment

The permittee may submit a written request to EPA requesting a change in the permitted pH range. The permittee may not request a change which is less restrictive than 6.0 to 9.0 standard units range found in the National Effluent Limitation Guideline for this facility (secondary treatment regulations at 40 CFR part 133). The permittee's written request must include the State's approval letter containing an original signature (no copies). The State's letter shall assert that the permittee has demonstrated to the State's satisfaction that as long as discharges to the receiving water from a specific outfall are within a specific numeric pH range, the naturally occurring receiving water pH will be unaltered. The letter must specify for each outfall the associated numeric pH limit range. The permittee must continue to meet the pH limit contained in the permit until written notification is received by certified mail from the EPA indicating the pH limit has been changed.

The sample IICEP letter following was distributed to the list below:

Carole Copeyon, U.S. Fish and Wildlife Service, Pennsylvania Field Office, 315 S Allen St, Ste 322, State College, PA 16801

Kathy Frankel, Pennsylvania Department of Conservation and Natural Resources, 301 Fifth Ave, Ste 324, Pittsburgh, PA 15222-2420

Susan McDonald, Federal Aviation Administration, Harrisburg Airports District Office, 3905 Hartzdale Dr, Ste 508, Camp Hill, PA 17011

Jeffrey Ziegler, Moon Township Administration Office, 1000 Beaver Grade Rd, Moon Township, PA 15108

Christopher Caruso, Township of Findlay, 1271 Route 30, PO Box W, Clinton, PA 15026

Rich Belotti, Pittsburgh International Airport, Landside Terminal, 4th Floor Mezzanine, PO Box 12370, Pittsburgh, PA 15231-0370

Craig Peters, 911th Air Wing, U.S. Air Force Reserve, Pittsburgh International Airport, 2475 Defense Ave, Coraopolis, PA 15108-2983

Bud Jameson, Jr., 316th Expeditionary Sustainment Command, 99 Soldiers Ln, Coraopolis, PA 15108-2550

Scott A. Hans, U.S. Army Corps of Engineers, 2200 William S. Moorhead Federal Building, 1000 Liberty Ave, Pittsburgh, PA 15222-4186

Barbara Rudnick, U.S. EPA, Region 3, Office of Environmental Programs (3EA30), Environmental Assessment and Innovation Div, 1650 Arch St, Philadelphia, PA 19103-2029

Bradley D. Penrod, Allegheny County Department of Aviation, Pittsburgh International Airport, PO Box 12370, Pittsburgh, PA 15231-0370

Sandra Etzel, Allegheny County Health Department, Air Quality Program, 301 39th St, Bldg 7, Pittsburgh, PA 15201

Lou Sitio, U.S. Army Corps of Engineers, North Atlantic Division, 302 General Lee Ave, Brooklyn, NY 11252

The Honorable Robert Casey, Jr., U.S. Senate, 393 Russell Senate Office Bldg, Washington, DC 20510

The Honorable Patrick Toomey, U.S. Senate, 502 Hart Senate Office Bldg, Washington, DC 20510

The Honorable Matt Smith, Pennsylvania Senate, Senate Box 203037, Harrisburg, PA 17120-3037

The Honorable Mark Mustio, Pennsylvania House of Representatives, 1009 Beaver Grade Rd, Ste 220, Moon Township, PA 15108

The Honorable Anthony Celeste, Mayor of Coraopolis, 1121 Third Ave, Coraopolis, PA 15108

The Honorable Tom Corbett, Office of the Governor, 301 5th Ave, Rm 240, Pittsburgh, PA 15222

The Honorable Tim Murphy, House of Representatives, 2332 Rayburn House Office Bldg, Washington, DC 20515





Sample Pittsburgh ANGSI ICEP Letter

**NATIONAL GUARD BUREAU**

3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

16 Sep 13

Kathy Frankel  
Natural Resource Program Supervisor  
Pennsylvania Department of Conservation and Natural Resources  
301 Fifth Ave, Ste 324  
Pittsburgh, PA 15222-2420

Dear Ms. Frankel

The United States Air Force (USAF) plans to replace the existing KC-135 aerial refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 aircraft beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANG, New Hampshire;
- Pittsburgh ANG, Pennsylvania; and,
- Rickenbacker ANG, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Pittsburgh ANG in Pennsylvania. The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Pittsburgh ANG as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

## Sample Pittsburgh ANGSI IICEP Letter

Page 2

At Pittsburgh ANGSI, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 *et seq.*), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989), the NGB is preparing an EIS in support of this action.

Included as an attachment with this letter is a CD that contains the first two chapters of the EIS: the purpose and need for the action, and the Description of the Proposed Action and Alternatives (DOPAA). We invite you to review these two chapters and provide comments. Your comments are important to us, in that they will help us to identify potential issues associated with implementation of the proposal. We will also send you the Draft EIS upon its release, which is anticipated in early 2014. We will continue to send you updates and information related to this action unless you request otherwise.

The NGB previously sent you a letter indicating that a scoping meeting at Pittsburgh ANGSI was to be held Tuesday, June 4, 2013 at both 2-4 p.m. and 6-9 p.m. in Moon Township, Pennsylvania and invited you to attend this informational meeting. This letter also documented that the formal scoping period was May 17 through July 5, 2013. Notices for the scoping meeting were posted and published in the *Tribune Review* on May 26 and June 2, 2013. If you would like the NGB to consider your comments for inclusion in the Draft EIS, please forward your comments to the KC-46A MOB2 Project Manager, Ms. Anne Rowe, at NGB/A7AM, Sheppard Hall, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or email to [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil) within 30 days of this notification.

If you have any questions regarding this consultation, please contact Ms. Anne Rowe. She can be reached at (240) 612-8636 or [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil).

Sincerely



ROBERT L. DOGAN, GS-13, REM  
Plans and Requirements Branch

TIM MURPHY  
18TH DISTRICT, PENNSYLVANIA  
  
COMMITTEE ON ENERGY AND COMMERCE  
CHAIR, OVERSIGHT AND INVESTIGATIONS  
ENVIRONMENT AND ECONOMY  
HEALTH



CO-CHAIR, STEEL CAUCUS  
CO-CHAIR, MENTAL HEALTH CAUCUS

Website: [murphy.house.gov](http://murphy.house.gov)

**Congress of the United States  
House of Representatives  
Washington, DC 20515**

October 11, 2013

Lt. Gen. Stanley Clarke  
Director  
U.S. Air Force National Guard Bureau  
1000 Air Force Pentagon  
Washington, D.C. 20330

Dear Lt. Gen. Clarke,

As the National Guard Bureau solicits public comment pursuant to an Environmental Impact Statement for selection of the second main operating base (MOB-2) for the KC-46A refueling tanker, I offer my input on the advantages of the 171<sup>st</sup> Pennsylvania Air National Guard station at Pittsburgh International Airport. As it is located in the 18<sup>th</sup> congressional district, which I have the honor of representing in Congress, I have long worked on issues related to the 171<sup>st</sup> and appreciate the opportunity to offer my insight.

Choosing the 171<sup>st</sup> as the MOB-2 for the KC-46A will not result in a negative impact on the environment for a number of reasons. First, the land surrounding both the 171<sup>st</sup> and the airfield has already been prepared for development, and a significant buffer zone exists between the airport and residential neighborhoods. Since the installation is located within one of the fifty busiest commercial airports in the country, flight paths for the KC-46A are already in place to minimize noise and disruption. As well, the Air Force is unlikely to incur any significant costs related to land acquisition or infrastructure needs. The Allegheny County Airport Authority is reviewing the possibility of widening T-ramps to accommodate larger KC-46As and building a direct access road between the 171<sup>st</sup> and 911<sup>th</sup> Air Reserve Station, which has additional dining and lodging facilities.

At the federal, state, and local levels, elected officials and the community have worked vigorously to build a favorable climate for the military to remain and thrive in the region. Western Pennsylvania demonstrates unrivaled support for the 171<sup>st</sup> and our nation's Air Force. The airport property is now home to several military installations and disaster response units, helping to facilitate emergency preparedness operations with local law enforcement and joint-training exercises required by military planners. For example, the 171<sup>st</sup> works cooperatively with the adjacent Air Reserve unit: the 911<sup>th</sup> Airlift Wing. The 316<sup>th</sup> Army Reserve is also located on airport property and a new Navy Operations and Support Center is under construction on the grounds of the 911<sup>th</sup>. In addition, a new DECA Commissary and a new Post Exchange serving tens of thousands of eligible and retired military families are opening in May 2014. These projects illustrate that both

1102 RAYMOND HOUSE OFFICE BUILDING  
WASHINGTON, DC 20515  
(202) 225-2301  
Fax: (202) 225-1644

1004 WASHINGTON ROAD  
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(412) 344-5553  
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2040 FREDERICKSON PLACE  
SUITE 136  
GREENSBORO, PA 15601  
(724) 850-7012  
Fax: (724) 850-1014

Lt. Gen. Stanley Clarke  
October 11, 2013  
Page 2

community support and the required military infrastructure are in place for the 171<sup>st</sup> to serve as the future home of the KC-46A.

I welcome the opportunity to discuss further with you why the 171<sup>st</sup> is uniquely situated to serve as MOB-2, and stand ready to provide any additional information to assist in your decision-making process.

Thank you for your service to the nation.

Sincerely,

  
Tim Murphy  
Member of Congress

TM:bdg

CC: Ms. Anne Rowe, National Guard Bureau



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION III  
1650 Arch Street  
Philadelphia, Pennsylvania 19103-2029

October 31, 2013

Ms. Anne Rowe  
KC-46A MOB2 Project Manager  
NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

RE: Description of the Proposed Action and Alternatives Environmental Impact Statement  
Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installation

Dear Ms. Rowe:

In accordance with the National Environmental Policy Act (NEPA) of 1969 and Section 309 of the Clean Air Act and Council on Environmental Quality regulations implementing NEPA (40 CFR 1500-1508), the U.S. Environmental Protection Agency (EPA) has reviewed the Description of Proposed Action and Alternatives (DOPAA) for the Proposed Draft Environmental Impact Statement for the Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations. EPA has comments on the DOPAA which are enclosed in the "Technical Comment" document.

Thank you for providing EPA with the opportunity to review this project. If you need assistance in the future, the staff contact for this project is Karen DelGrosso; she can be reached at 215-814-2765.

Sincerely,

A handwritten signature in black ink, appearing to read "Barbara Rudnick", is placed above the typed name.

Barbara Rudnick  
NEPA Team Leader  
Office of Environmental Programs

Enclosure (1)

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## Technical Comments

### CHAPTER 1

Page 1-3 states, “In support of TFI (total force integration), an active duty associate unit would be integrated with ANG personnel and equipment under any of the action alternatives, enabling joint training and execution of missions using ANG-assigned aircraft.” Please explain what this means as it relates to the requirements of the Proposed Action. Is the active duty associate unit (and all that it involves) included in the Proposed Action? Will the active duty associate unit require more staff/personnel, resources, etc.? If this is a necessary component to the Proposed Action, please distinguish and describe its requirements and address if it is accounted for and included in the environmental analysis at each of the proposed sites.


Page 1-5, Table 1.3-1 (Comparison of KC-135 and KC-46A) indicates 3 crewmembers for the KC-46A. However, Fact Sheet #2 for KC-46A Tanker (page 1-7) states that the aircrew compartment includes 15 permanent seats for aircrew which includes permanent seating for the Boom Operator and an air refueling instructor. It can be assumed that a minimum of 3 crewmembers are necessary for each operation, but more crewmembers can participate in the operation. To better understand the operation and military personnel needed/per operation, please specify required crewmembers for each KC-46A operation and the possibility of additional crewmembers that may likely participate in each operation.

Page 1-8 states, “KC-46A aircrews at the selected MOB 2 installation would complete operational sorties as part of their global reach missions and local training sorties to maintain proficiency in the aircraft.” Can it be assumed then that the number of sorties would be different depending on the alternative site location? Please confirm/explain.

### CHAPTER 2

Page 2-3 states, “Under the Proposed Action, the 12 PAA KC-46A aircraft would fly 670 hours per aircraft, per year, for a total of 8,040 hours annually. Thus, with an average sortie duration (ASD) of 4.0 hours, the KC-46A aircraft would fly 2,010 sorties annually.” When reviewing the tables for each of the action alternatives (Tables 2.3-2, 2.3-8, 2.3-14, 2.3-19, 2.3-26 and Tables (2.3-3, 2.3-9, 2.3-15, 2.3-20, 2.3-27) , “operations” not “sorties” are measured for comparing site locations. In addition, the “Total Proposed KC-46A Annual Airfield Operations” for each site is different. Can sorties be added to these tables or used in additional tables since it is the criteria used to describe the KC-46A Operations as stated above and outlined in 2.1.2.4?

Page 2-44 and 2-45: Please mention within Chapter 2 and/or discuss in detail in subsequent chapters the historical significance of Hangar 302 and Hangar 320 and if/how the additions proposed would affect hangars if found to be historically significant.

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Customer Service Hotline: 1-800-438-2474

The sample IICEP letter following was distributed to the list below:

Teresa Spagna, U.S. Army Corps of Engineers, Huntington District, 502 Eighth St, Huntington, WV 25701-2070  
Ohio Environmental Protection Agency, Lazarus Government Center, 50 W Town St, Ste 700, Columbus, OH 43215  
U.S. Environmental Protection Agency, Region 5, 77 W Jackson Blvd, Chicago, IL 60604  
Mary Knapp, Fish and Wildlife Service, 4625 Morse Rd, Ste 104, Columbus, OH 43230-8355  
Lee Brown, Franklin County Economic Development & Planning Department, 150 S Front St, FSL Ste 10, Columbus, OH 43215  
Columbus Regional Airport Authority, 4600 International Gateway, Columbus, OH 43219  
Columbus Regional Airport Authority, Rickenbacker International Airport, Administrative Offices, 7161 Second St, Columbus, OH 43217  
Dan Garver, Ohio Natural Resource Conservation Service, Pickaway County, Circleville Service Center, 110 Island Rd, Ste D, Circleville, OH 43113-9575  
Ohio Department of Health, 246 N High St, Columbus, OH 43215  
Columbus Health Department, 240 Parsons Ave, Columbus, OH 43215  
Ohio Department of Transportation, District 6, 400 E William St, Delaware, OH 43015  
Pickaway County Office of Development and Planning, 124 W. Franklin St, Circleville, OH 43113  
Ohio Department of Natural Resources, Division of Geological Survey, 2045 Morse Rd, Bldg C1, Columbus, OH 43229-6693  
Ohio Department of Natural Resources, Division of Wildlife, 2045 Morse Rd, Bldg G, Columbus, OH 43229-6693  
Ohio Department of Natural Resources, Division of Soil & Water, 2045 Morse Rd, Bldg B-3, Columbus, OH 43229-6693  
John Ankrom, City of Circleville Planning and Zoning Commission, 104 E Franklin St, Circleville, OH 43113  
Katie Delaney, Federal Aviation Administration, 11677 S Wayne Rd, Ste 107, Romulus, MI 48174  
The Honorable Sherrod Brown, U.S. Senate, 713 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Rob Portman, U.S. Senate, 448 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Steve Stivers, House of Representatives, 1022 Longworth HOB, Washington, DC 20515  
The Honorable Heather Bishoff, Ohio House of Representatives, 77 S High St, 10th Fl, Columbus, OH 43215  
The Honorable Kevin Bacon, Ohio Senate, 1 Capitol Square, Ground Floor, Columbus, OH 43215  
The Honorable John Kasich, Office of the Governor, 77 S High St, 30th Fl, Columbus, OH 43215-6117  
The Honorable Michael Coleman, Mayor of Columbus, City Hall, 2nd Fl, 90 W Broad St, Columbus, OH 43215





## Sample Rickenbacker ANGSI ICEP Letter

**NATIONAL GUARD BUREAU**

3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

16 Sep 13

Teresa Spagna  
U.S. Army Corps of Engineers  
Huntington District  
502 Eighth St  
Huntington, WV 25701-2070

Dear Ms. Spagna

The United States Air Force (USAF) plans to replace the existing KC-135 aerial refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 aircraft beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANG, New Hampshire;
- Pittsburgh ANG, Pennsylvania; and,
- Rickenbacker ANG, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Rickenbacker ANG in Ohio. The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Rickenbacker ANG as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

Sample Rickenbacker ANG S IICEP Letter

Page 2

At Rickenbacker ANG S, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur.

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321 *et seq.*), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures (32 CFR Part 989), the NGB is preparing an EIS in support of this action.

Included as an attachment with this letter is a CD that contains the first two chapters of the EIS: the purpose and need for the action, and the Description of the Proposed Action and Alternatives (DOPAA). We invite you to review these two chapters and provide comments. Your comments are important to us, in that they will help us to identify potential issues associated with implementation of the proposal. We will also send you the Draft EIS upon its release, which is anticipated in early 2014. We will continue to send you updates and information related to this action unless you request otherwise.

The NGB previously sent you a letter indicating that a scoping meeting at Rickenbacker ANG S was to be held Thursday, June 6, 2013 at both 2-4 p.m. and 6-9 p.m. in Columbus, Ohio and invited you to attend this informational meeting. This letter also documented that the formal scoping period was May 17 through July 5, 2013. Notices for the scoping meeting were posted and published in the *Columbus Dispatch* on May 26 and June 2, 2013. If you would like the NGB to consider your comments for inclusion in the Draft EIS, please forward your comments to the KC-46A MOB2 Project Manager, Ms. Anne Rowe, at NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue, Joint Base Andrews MD 20762-5157 or email to [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil) within 30 days of this notification.

If you have any questions regarding this consultation, please contact Ms. Anne Rowe. She can be reached at (240) 612-8636 or [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil).

Sincerely



ROBERT L. DOGAN, GS-13, REM  
Plans and Requirements Branch

-----Original Message-----

From: Spagna, Teresa D LRH [<mailto:Teresa.D.Spagna@usace.army.mil>]

Sent: Tuesday, October 01, 2013 11:29 AM

To: ANGRC/NGB/A7A NEPA COMMENTS

Subject: review of United States Air Force document (UNCLASSIFIED)

Classification: UNCLASSIFIED

Caveats: NONE

Ms. Anna Rowe  
National Guard Bureau/A7AM  
Sheppard Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Ms. Rowe:

I refer to the document titled "Description of the Proposed Action and Alternatives Environmental Impact Statement Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations" and dated September 2013. The Environmental Impact Statement (EIS) is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including the Rickenbacker Air National Guard Station (ANGS) in Ohio. The provided document describes the United States Air Force purpose and need for the proposed action and the description of the proposed action and alternatives. You have requested the United States Army Corps of Engineers (Corps) review the provided document and provide comments.

The Corps has completed its review of the provided document. The EIS should thoroughly evaluate the effects of the project on areas within the Corps' regulatory jurisdiction. The Corps' authority to regulate waters of the United States is based, in part, on the definitions and limits of jurisdiction contained in 33 CFR 328 and 33 CFR 329. Section 404 of the Clean Water Act requires that a Department of the Army permit be obtained prior to the discharge of dredged or fill material into waters of the United States, including wetlands. Section 10 of the Rivers and Harbors Act of 1899 requires that a Department of the Army permit be obtained for any work in, on, over or under a navigable water. If it is determined that the proposed action would result in the discharge of dredged and/or fill material into waters of the United States or work in, on, over or under a navigable water, Corps' authorization under Section 404 of the Clean Water Act and/or Section 10 of the Rivers and Harbors Act of 1899 would be required. In this regard, to ensure the information presented in EIS is adequate to fulfill the Corps' statutory requirements, including the requirements of 404(b)(1) of the Clean Water Act and the Corps' public interest review, the Corps the topics listed in Enclosure 1 should be scoped and evaluated in the EIS.

Thank you for allowing the Corps to provide comments on the provided document. We look forward to working with the United States Air Force as a cooperating agency for any NEPA document where Huntington District Corps has jurisdiction by law. If you have any questions, please give me a call at 304-399-5210 or by email at [teresa.d.spagna@usace.army.mil](mailto:teresa.d.spagna@usace.army.mil).

Sincerely,

Teresa D. Spagna  
Regulatory Project Manager  
North Branch

Classification: UNCLASSIFIED  
Caveats: NONE

### Enclosure 1

- 1) **Aquatic Resource Identification.** The NEPA documents(s) must include a site-specific identification of all aquatic resources within the proposed project areas, including any aquatic resources within proposed construction, building renovation, and facility demolition areas. The identification should include a description of any streams, open water features and wetlands. The identification of aquatic resources within the project area must be based on field observations and field data. The identification must include a wetland delineation for each site prepared in accordance with the Corps' 1987 Wetland Delineation Manual (87 Manual) and any applicable Regional Supplement to the 87 Manual. This information would be required to determine the effects of the projects on aquatic resources.
  
- 2) **Avoidance and minimization.** A fundamental precept of the Corps' Regulatory Program under Section 404 of the Clean Water Act is that the discharge of dredged and/or fill material into waters of the United States will be avoided and minimized, where it is practicable to do so. Under Section 404 of the Clean Water Act, only the least environmentally damaging practicable alternative would receive Corps authorization. An alternative is practicable if it is available and capable of being done after taking into consideration cost, logistics and existing technology in light of overall project purposes. The NEPA document(s) should evaluate how the projects were designed to avoid and minimize the discharge of dredged and/or fill material into waters of the United States. The alternatives analysis section of the NEPA document(s) should analyze on-site avoidance and minimization alternatives and avoidance and minimization alternatives for any off-site borrow, spoil and mitigation areas.
  
- 3) **Compliance with the 404(b)(1) Guidelines.** The Section 404(b)(1) Guidelines (Guidelines) are the substantive criteria used in evaluating discharges of dredged and/or fill material under Section 404 of the Clean Water Act. The Guidelines are published at 40 CFR Part 230. The fundamental precept of the Guidelines is that discharges of dredged and/or fill material into waters of the United States, including wetlands, should not occur unless it can be demonstrated that such discharges, either individually or cumulatively, will not result in unacceptable adverse effects on the aquatic ecosystem. Subpart B of the Guidelines establishes the four conditions which must be satisfied in order to make a finding that a proposed discharge of dredged or fill material complies with the Guidelines. These conditions generally state:
  - a. No discharge of dredged or fill material shall be permitted if there is a practicable alternative to the proposed discharge which would have less adverse impact on the aquatic ecosystem, so long as the alternative does not have other significant adverse environmental consequences;
  
  - b. No discharge of dredged or fill material shall be permitted if it:
    - i. Causes or contributes, after consideration of disposal site dilution and dispersion, to violations of any applicable State water quality standard;
    - Violates any applicable toxic effluent standard or prohibition under section 307 of the Act;

- ii. Jeopardizes the continued existence of species listed as endangered or threatened under the Endangered Species Act of 1973, as amended, or results in likelihood of the destruction or adverse modification of a habitat which is determined by the Secretary of Interior or Commerce, as appropriate, to be a critical habitat under the Endangered Species Act of 1973, as amended; and
    - iii. Violates any requirement imposed by the Secretary of Commerce to protect any marine sanctuary designated under title III of the Marine Protection, Research, and Sanctuaries Act of 1972;
  - c. No discharge of dredged or fill material shall be permitted which will cause or contribute to significant degradation of the waters of the United States. Under these Guidelines, effects contributing to significant degradation considered individually or collectively, include:
    - i. Significant adverse effects of the discharge of pollutants on human health or welfare, including but not limited to effects on municipal water supplies, plankton, fish, shellfish, wildlife, and special aquatic sites;
    - ii. Significant adverse effects of the discharge of pollutants on life stages of aquatic life and other wildlife dependent on aquatic ecosystems, including the transfer, concentration, and spread of pollutants or their byproducts outside of the disposal site through biological, physical and chemical processes;
    - iii. Significant adverse effects of the discharge of pollutants on aquatic ecosystem diversity, productivity, and stability. Such effects may include, but are not limited to, loss of fish and wildlife habitat or loss of the capacity of a wetland to assimilate nutrients, purify water, or reduce wave energy; or
    - iv. Significant adverse effects of discharge of pollutants on recreational, aesthetic and economic values.
- Findings of significant degradation related to the proposed discharge are based upon appropriate factual determinations, evaluations, and tests required by Subparts B and G of the Guidelines, after consideration of subparts C through F, with special emphasis on the persistence and permanence of the effects outlined in those subparts; and
- d. No discharge of dredged or fill material shall be permitted unless appropriate and practicable steps have been taken which will minimize potential adverse impacts of the discharge on the aquatic ecosystem.
- 4) **Corps public interest review factors.** The Corps must evaluate the probable impacts, including cumulative impacts, of the proposed activity and its intended use on the public interest. Among the factors that must be evaluated as part of the Corps' public interest review include: conservation, economics, aesthetics, general environmental concerns, wetlands, historic properties, fish and wildlife values, flood hazards, floodplains values, land use, navigation, shore erosion and accretion, recreation, water supply and conservation, energy needs, safety, food and fiber production, mineral needs, water quality, considerations of property ownership, air and noise impacts, and, in general, the needs and welfare of the

people. (See 33 CFR 320.4) These factors should be scoped and evaluated in the NEPA document(s);

- 5) **Effects to Aquatic Resources.** The NEPA document(s) should quantify the anticipated impacts to waters of the United States, both temporary and permanent, resulting from activities within the Corps jurisdiction. Waters of the United States could include: perennial, intermittent and ephemeral streams; rivers; lakes; ponds; and wetlands. For rivers and streams, the quantity should be described in linear feet and in acreage. For wetlands, this quantity should be described by acreage. The NEPA document(s) should also describe the wetland classification (e.g. palustrine, forested, scrub-shrub or emergent). The NEPA document should differentiate between permanent and temporary impacts and must describe any permanent conversion in the wetland classification (e.g. palustrine forested to palustrine emergent, etc.);
- 6) **Cumulative and Indirect Effects.** The cumulative and indirect impacts on aquatic resources resulting from the projects should be scoped and evaluated in the NEPA document(s);
- 7) **Off-Site Areas.** The NEPA document(s) should include an analysis of the environmental effects to any off-site borrow, spoil or mitigation areas;
- 8) **Compliance with Other Federal Laws.** The NEPA document(s) should document compliance with:
  - a. **Section 106 of the National Historic Preservation Act (NHPA).** The NEPA document(s) must describe compliance with Section 106 of the NHPA and must describe the research efforts undertaken to identify historic properties within the project areas, including any off-site borrow, spoil and mitigation areas. The NEPA document(s) should use site-specific collected data in the identification of historic properties within the project areas;
  - b. **Section 7 of the Endangered Species Act.** The Corps suggests United States Air Force contact the United States Fish and Wildlife Service for a list of federally-protected species; and
  - c. **Section 401 of the Clean Water Act.** The NEPA document(s) must describe compliance with Section 401 of the Clean Water Act.



-----Original Message-----

From: Tebbe, Sarah [<mailto:Sarah.Tebbe@dnr.state.oh.us>]

Sent: Wednesday, October 02, 2013 5:03 PM

To: Rowe, Anne M CTR USAF ANG NGB/A7AM; ANGRC/NGB/A7A NEPA COMMENTS

Cc: Kessler, John

Subject: KC-46A MOB 2 Replacement EIS Rickenbacker ANG

Hi Anne,

We have received your notification and have no further comments on the proposed action.

Thanks,

Sarah Tebbe

ODNR office of REALM

Phone: 614 265 6397

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**Appendix B2**

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***Native American Correspondence***



**Table B2-1. Forbes ANG'S Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Delaware Nation	Letter Sent to: Tamara Francis, THPO 31064 US Highway 281, Bldg. 100, Anadarko, OK 73005  Letter Sent to: Kerry Holton, President Delaware Nation PO Box 825, Anadarko, OK 73005	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message.
Prairie Band of Potawatomi Tribe	Letter Sent to: Steve Ortiz, Chairperson Prairie Band of Potawatomi Tribe, 16281 Q Rd, Mayetta, KS 66509	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message. Telephoned on 4/4/14 and left messages with Chairman and THPO.
Citizen Potawatomi Nation	Letter Sent to: Kelli Mosteller, THPO 1601 S Gordon Cooper Dr, Shawnee, OK 74801  Letter Sent to: John Barrett, Chairman 1601 S Gordon Cooper Dr Shawnee, OK 74801	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message. Telephoned on 4/3/14 and left message.
Eastern Shawnee Tribe of Oklahoma	Letter Sent to: Glenna Wallace, Chief 12755 S 705 Rd, Wyandotte, OK 74370	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message. Telephoned on 4/3/14 and left message.
Kaw Nation	Letter Sent to: Guy Munroe, Chairman Kaw Nation, Drawer 50, Kaw City, OK 74641  Response From: Clint Halftown	Yes	Yes	Yes	Consultation Completed via e-mail

\*Letters and written correspondence to Tribes were followed up with telephone calls and e-mails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternatives is now complete.

**Table B2-1. Forbes ANG'S Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Osage Nation of Oklahoma	Letter Sent to: Andrea Hunter, THPO Osage Nation of Oklahoma 627 Grandview, Pawhuska, OK 74056  Letter Sent to: John Redeagle, Principal Chief PO Box 779, 627 Grandview Pawhuska, OK 74056	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message. Telephoned on 4/4/14 and left message.
Absentee Shawnee Tribe of Oklahoma	Letter Sent to: George Blanchard 2025 S Gordon Cooper Dr, Shawnee, OK 74801  Letter Sent to: Henryetta Ellis, THPO 2025 S Gordon Cooper Dr, Shawnee, OK 74801	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message. Telephoned on 4/3/14 and left message.
Wichita and Affiliated Tribes	Letter Sent to: Leslie Standing, President PO Box 729, Anadarko, OK 73005  Response From: Unknown	Yes	Yes	Yes	Consultation Completed via telephone call.

\*Letters and written correspondence to Tribes were followed up with telephone calls and e-mails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternatives is now complete.

**Table B2-2. JB MDL Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Delaware Tribe of Indians	Letter Sent to and Response From: Brice Obermeyer, THPO Department of Sociology and Anthropology, Emporia State University, Roosevelt Hall, Rm 212, 1200 Commercial St, Emporia, KS 66801  Letter Sent to: Paula Pechonick, Chief 170 NE Barbara St, Bartlesville, OK 74006  Letter Sent to: Chester Brooks, Trust Board Chairman 170 NE Barbara St, Bartlesville, OK 74006	Yes	Yes	Yes	Consultation Completed via letter.
Delaware Nation	Letter Sent to: Tamara Francis, THPO 31064 US Highway 281, Bldg. 100, Anadarko, OK 73005  Letter Sent to: Kerry Holton, President PO Box 825, Anadarko, OK 73005  Response From: Unknown	Yes	Yes	Yes	Consultation Completed via telephone
Stockbridge-Munsee Community	Letter Sent to and Response From: Sherry White, THPO, N8476 Mo He Con Nuck Road, Bowler, WI 54416	Yes	Yes	Yes	Consultation Completed via e-mail.

**Table B2-3. Pease ANGS Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Penobscot Indian Nation	Letter Sent to: Kirk Francis, Tribal Chief 12 Wabanaki Way, Indian Island, ME 04668  Letter Sent to and Response From: Bonnie Newsom, THPO 12 Wabanaki Way, Indian Island, ME 04468	Yes	Yes	Yes	Consultation Completed via telephone call.



**Table B2-4. Pittsburgh ANGS Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Cayuga Nation of New York	Letter Sent to: Melinda Maybee, Nation Representative PO Box 803, Seneca Falls, NY 13148	Yes	Yes	Yes	Consultation Completed via E-mail.
Onondaga Nation of New York	Letter Sent to: Irving Powless, Chief RRT#1, PO Box 319-B, Nedrow, NY 13120  Response From: Tribal Section 106 representative (name unknown)	Yes	Yes	Yes	Consultation Completed via telephone call.
Tuscarora Nation of New York	Letter Sent to: Leo Henry, Chief 2006 Mt Hope Rd, Lewiston, NY 14092  Response From: Mr. Bryan Printup 2006 Mt Hope Rd, Lewiston, NY 14092	Yes	Yes	Yes	Consultation Completed via letter.
Seneca Nation of Indians	Letter Sent to: Robert Odawi Porter, President 12837 Rte. 438, Irving, NY 14081  Letter Sent to: Lana Watt, THPO 90 Ohiyo Way, Salamanca, NY 14779  Response From: Jay Toth, Tribal Archeologist 90 OHI:WAY Salamanca, NY 14779	Yes	Yes	Yes	Consultation Completed via e-mail.
Tonawanda Band of Seneca	Letter Sent to: Roger Hill, Chief 7027 Meadville Rd, Basom, NY 14013  Response From: Unknown	Yes	Yes	Yes	Consultation Completed via telephone call.

**Table B2-5. Rickenbacker ANGS Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Shawnee Tribe	Letter Sent to: Ron Sparkman, Chief PO Box 189, Miami, OK 74355  Letter Sent to: Jodi Hayes, Tribe Administrator PO Box 189, Miami, OK 74355  Response From: THPO (name unknown)	Yes	Yes	Yes	Consultation Completed via telephone call.
Forest County Potawatomi Community	Letter Sent to: Harold Frank, Chairman PO Box 340, Crandon, WI 54520	Yes	No	N/A*	E-mailed on 1/17/14 and telephoned on 1/17/14 and left message. Telephoned on 4/3/14 and left message.
Hannahville Indian Community	Letter Sent to: Kenneth Meshigaud, Chairperson N14911 Hannahville B1 Rd, Wilson, MI 49896-9728	Yes	No	N/A*	E-mailed on 1/17/14 and telephoned on 1/17/14, no answer. Telephoned on 4/3/14 and left message.
Miami Tribe of Oklahoma	Letter Sent to: George Strack, THPO PO Box 1326, Miami, OK 74355-1326  Letter Sent to: Thomas Gamble, Chairperson PO Box 1326, Miami, OK 74355-1326	Yes	No	N/A*	E-mailed on 1/17/14 and telephoned on 1/17/14 and left message. Telephoned on 4/3/14 and left message.
Ottawa Tribe of Oklahoma	Letter Sent to: Ethel áá Cooká, Chief PO Box 110, Miami, OK 74355	Yes	No	N/A*	E-mailed on 1/17/14 and telephoned on 1/17/14, no answer. Telephoned on 4/4/14 and left message.
Peoria Tribe of Indians of Oklahoma	Letter Sent to: John Froman, Chief PO Box 1527, Miami, OK 74355  Response From: Cynthia Stacy Special Projects Manager 118 S. Eight Tribes Trail Miami, OK 74355	Yes	Yes	Yes	Consultation Completed via letter.

\*Letters and written correspondence to Tribes were followed up with telephone calls and e-mails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternatives is now complete.

**Table B2-5. Rickenbacker ANGS Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Pokagon Band of Potawatomi Indians	Letter Sent to: Matthew Wesaw, Chairman PO Box 180, Dowagiac, MI 49047  Letter Sent to: Marcus Winchester, THPO PO Box 180, Dowagiac, MI 49047  Response From: Unknown	Yes	Yes	Yes	Consultation Completed via telephone call.
Turtle Mountain Band of Chippewa Indians of North Dakota	Letter Sent to: Kade Ferris, THPO PO Box 900, Belcourt, ND 58316  Letter Sent to: Merle St. Claire, Chairman PO Box 900, Belcourt, ND 58316  Response From: Unknown	Yes	Yes	Yes	Consultation Completed via telephone call.
Wyandotte Nation	Letter Sent to: Billy Friend, Chief 64700 E Highway 60, Wyandotte, OK 74370  Letter Sent to: Sherri Clemons, THPO 64700 E Highway 60, Wyandotte, OK 74370	Yes	No	N/A*	E-mailed on 1/22/14 and telephoned on 1/17/14 and left message. Telephoned on 4/4/14 and left message.
Delaware Nation	Letter Sent to: Tamara Francis, THPO 31064 US Highway 281, Bldg. 100, Anadarko, OK 73005  Letter Sent to: Kerry Holton, President PO Box 825, Anadarko, OK 73005  Response From: Unknown	Yes	Yes	Yes	Consultation Completed via telephone call.

\*Letters and written correspondence to Tribes were followed up with telephone calls and e-mails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternatives is now complete.

**Table B2-5. Rickenbacker ANGS Government-to-Government Consultation**

<b>Tribe</b>	<b>Point of Contact(s)</b>	<b>Consultation Letters Sent (Yes/No)</b>	<b>Response Received (Yes/No)</b>	<b>Concurrence (Yes/No)</b>	<b>Comment/Follow-Up</b>
Prairie Band of Potawatomi Tribe	Letter Sent to: Steve Ortiz, Chairperson 16281 Q Rd, Mayetta, KS 66509	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message. Telephoned on 4/4/14 and left messages with Chairman and THPO.
Citizen Potawatomi Nation	Kelli Mosteller, THPO 1601 S Gordon Cooper Dr, Shawnee, OK 74801  John Barrett, Chairman 1601 S Gordon Cooper Dr, Shawnee, OK 74801	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message.
Eastern Shawnee Tribe of Oklahoma	Glenna Wallace, Chief 12755 S 705 Rd, Wyandotte, OK 74370	Yes	No	N/A*	E-mailed tribe on 11/22/13 and telephoned on 11/22/13 and left message.

\*Letters and written correspondence to Tribes were followed up with telephone calls and e-mails in an effort to increase accessibility and encourage communication in the event a Tribe would have any concerns regarding the Proposed Action or land below the affected or proposed airspace areas. Additional efforts were made to contact non-responsive tribes without success. While the NGB and the USAF values its relationship with all tribes and will continue to consult on other planning efforts or matters of known or potential interest to tribes, Section 106 consultation on the KC-46A MOB 2 proposed alternatives is now complete.

The sample tribal letter following was distributed to the list below:

Tamara Francis, THPO, Delaware Nation, 31064 US Highway 281, Bldg. 100, Anadarko, OK 73005

Kerry Holton, President, Delaware Nation, PO Box 825, Anadarko, OK 73005



Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

**NATIONAL GUARD BUREAU**

3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

24 September 2013

NGB/A7A

Tamara Francis  
THPO  
Delaware Nation  
31064 US Highway 281  
Bldg. 100  
Anadarko, OK 73005

Dear Ms. Francis

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a Formal Training Unit (FTU) and the first Main Operating Base (MOB 1\*), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit.

Two separate Environmental Impact Statements (EISs) are being prepared for the MOB 1/FTU, and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Forbes ANGS in Kansas, Rickenbacker ANGS in Ohio, and Joint Base McGuire-Dix-Lakehurst (Attachments 1, 2, 3). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change

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\* The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

## Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

Page 2

to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

At Forbes ANG, Rickenbacker ANG, or JB MDL, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the areas of potential effect (APE) for this action to be limited to the portions of the installations where construction, demolition, and renovation activities would occur (Attachments 4, 5, 6).

At Forbes ANG, construction includes options for some of the facilities, but in general there would be an addition to Hangar 662; either interior modifications or an addition to Hangar 665; internal renovations to Building 679; and an addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron (Attachment 4).

At Rickenbacker ANG, construction activities would include: additions and renovations to Hangar 885, an addition to Hangar 883, interior renovations to Hangar 888, modifications to the aircraft ramp and taxiway, and addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron (Attachment 5).

At JB MDL, the construction activities would include an addition to Hangar 3333, an addition to Hangar 3336, interior renovations to Hangar 3332, construction of a new 6,700 square foot simulator building west of Building 3390, modifications/additions to the existing aircraft ramp and taxiway, and the addition of eight new fuel hydrants and associated fuel lines on the aircraft parking apron (Attachment 6).

The Delaware Nation has been identified as potentially having historic ties to these locations. In accordance with Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations Parts 800.2, 800.3, and 800.4) and in deference to Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, the 190th Air Refueling Wing (190 ARW), the 121st Air Refueling Wing (121 ARW), and the 108th Wing (108 WG) would like to initiate government-to-government consultation regarding the aircraft beddown. In May 2013, as part of the NEPA process, a public participation letter was sent informing various Tribes of the Proposed Action and the locations and times of public information and input meetings. This letter reflects an initiation of the NHPA consultation process under Section 106 for the same action.



**Forbes, JB MDL, and Rickenbacker Sample Tribal Letter**

Page 3

The 190 ARW, 121 ARW, and 108 WG would like to discuss the proposed undertaking in detail with you, and to understand and consider any comments, concerns, and suggestions you may have. In particular, the NGB requests your input as to the status of any traditional resources or historic properties that may be located in or near the proposed APEs for this undertaking on any of these three installations (see attached maps). All three of these installations have been surveyed for archaeological resources.

At Forbes ANG, no archaeological resources have been identified (KS ANG 2008). At Rickenbacker ANG, no archaeological resources were encountered during the recent comprehensive surveys of the installation (National Guard Bureau [NGB] 2007, NGB 2008, Snyder 2007). However, a few decades previous to the 2008 inventory during excavations for Building 911, a multi-component site (33FR2844) was uncovered. Site 33FR2844 consisted of a historic burial and a prehistoric lithic scatter. This site was recommended eligible for inclusion on the NRHP when it was discovered in 1985 (121 ARW 2011). This site is the only known significant archaeological resource present within the boundaries of the ANG and it is well outside the proposed APE for the undertaking.

At JB MDL, no archaeological resources have been identified within the proposed APE (Headquarters Air Mobility Command [HQ AMC] 1995, AMC 1996, Holmes 1996, Holmes *et al.* 1997, McGuire AFB 2003, Holmes and Goar 1998). Three historic archaeological sites were recommended eligible for inclusion in the National Register of Historic Places (NRHP). These sites are all well outside the proposed APE for this undertaking.

However, within the proposed APEs at each of the three installations or the vicinity of these APEs, there may be other cultural resources, including traditional resources, known to the Delaware Nation that would need to be considered in relation to the proposed undertaking.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 7), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

Please let us know when you would like to meet to discuss the aircraft beddown proposal and your expectations on how we will accomplish the consultations. You may contact 2d Lt Jarrod Brunkow, Environmental Manager for Forbes ANG, at (785) 861-4402 or jarrod.brunkow@ang.af.mil; or Roger Jones, Environmental Manager for Rickenbacker ANG, at (614) 492-4110 or roger.jones@ang.af.mil; or Lt Robert Mendez, Environmental Manager for JB MDL, at (609) 754-3718 or robert.mendez@ang.af.mil. You also may request an individual or group meeting with your Tribe.

Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

Page 4

We look forward to working with the Delaware Nation in the NHPA Section 106 and government-to-government consultation processes.

Sincerely



WILLIAM P. ALBROW, P.E., GS-15  
Associate Director, Installations and Mission  
Support

cc:

2d Lt Jarrod Brunkow, KS ANG  
Colonel Ron Krueger, Wing Commander  
Colonel James Jones, 121st Wing Commander, OH ANG  
Mr. Roger Jones, OH ANG  
Colonel Kevin Keehn, 108th Wing Commander, JB MDL  
Lt Robert Mendez, JB MDL

Attachments:

1. Vicinity Map of Forbes ANG
2. Vicinity Map of Rickenbacker ANG
3. Vicinity Map of JB MDL
4. Map of Forbes ANG Area of Potential Effect
5. Map of Rickenbacker ANG Area of Potential Effect
6. Map of JB MDL Area of Potential Effect
7. Draft Description of the Proposed Action and Alternatives

References:

121st Air Refueling Wing (121 ARW)  
2011 *Integrated Cultural Resources Management Plan*. May 2011.

Air Mobility Command (AMC)  
1996 *Inventory of Cold War Properties*. December 1996.

Headquarters Air Mobility Command (HQ AMC)  
1995 *An Archaeological and Historical Resources Inventory of McGuire Air Force Base, New Jersey*. Prepared by Moeller, K.L., D.A. Walitschek, M. Greby, and J.F. Hoffecker of the Argonne National Laboratory for McGuire AFB.

Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

Page 5

Holmes, Richard D.

1996 *Phase II Testing of Four Historic Sites McGuire Air Force Base Burlington County, New Jersey*. April 1996. Prepared by Mariah Associates, Inc., Albuquerque, New Mexico and Lyndhurst, New Jersey. Prepared for US Air Force/Air Mobility Command, Scott Air Force Base, Illinois.

Holmes, Richard D., Toni R. Goar, and Katherine J. Roxlau

1997 *Phase I Archaeological Survey of Areas 4100 and 4200 McGuire Air Force Base, New Hanover Township, Burlington County, New Jersey*. November 1997. Prepared by TRC Mariah Associates, Inc. Prepared for US Army Corps of Engineers New York District and US Air Force/Air Mobility Command Scott Air Force Base, Illinois.

Holmes, Richard D. and Toni R. Goar

1998 *Phase II Site Testing of Four Historic Site McGuire Air Force Base Burlington County, New Jersey*. January 1998. Prepared by TRC Mariah Associates, Inc. Prepared for US Air Force/Air Mobility Command, Scott Air Force Base.

Joint Base McGuire-Dix-Lakehurst (JB MDL)

2013 *Draft Integrated Cultural Resources Management Plan*. 87 CES/CEAN, JB MDL, New Jersey. January 2013.

Kansas Air National Guard (KS ANG)

2008 *Cultural Resources Survey and Evaluation Report for Kansas Air National Guard Properties at Forbes Field, Topeka, Kansas*. Prepared for Kansas Air National Guard and Air National Guard, National Guard Bureau. June 2008.

McGuire Air Force Base (AFB)

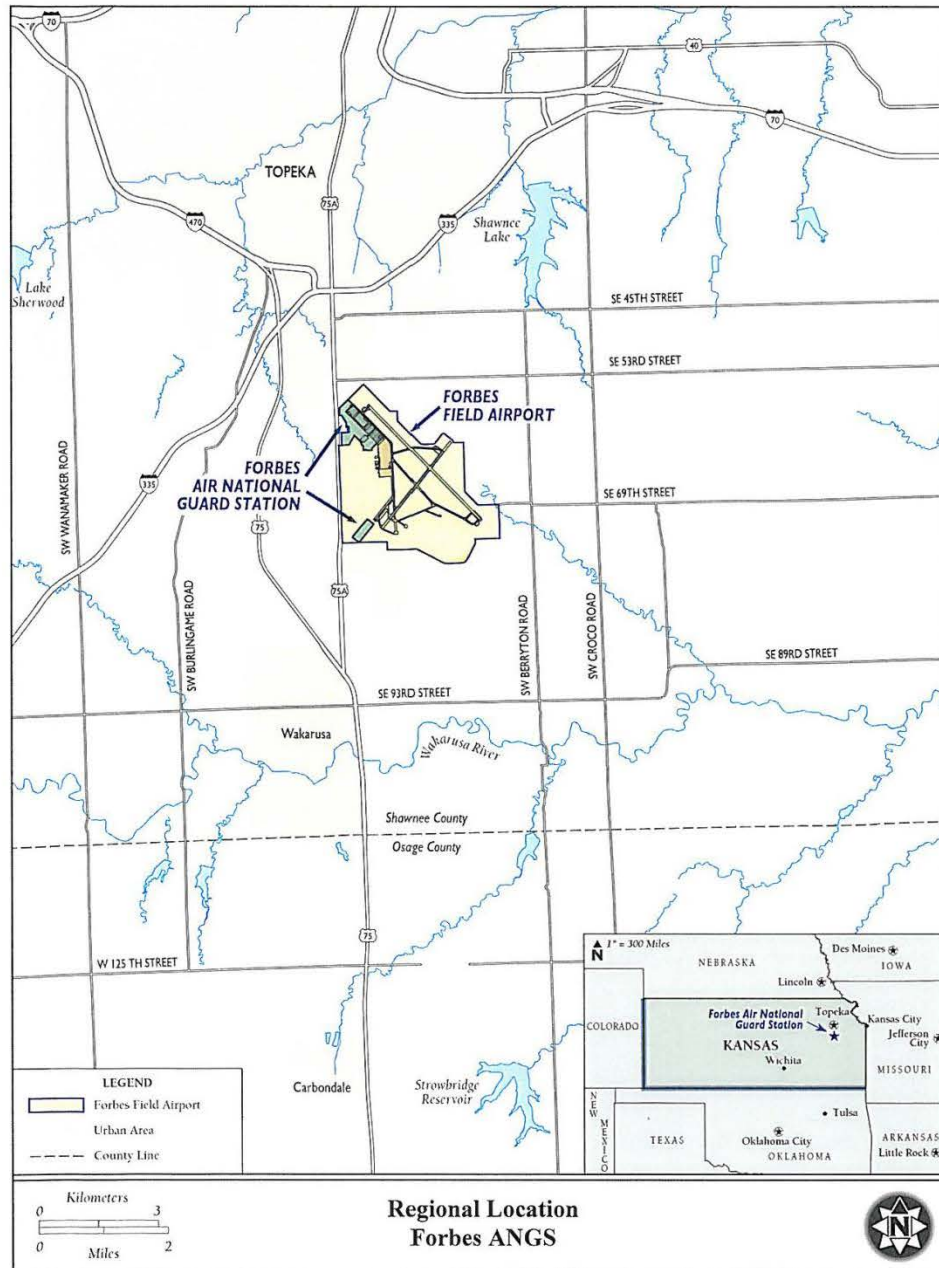
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National Guard Bureau (NGB)

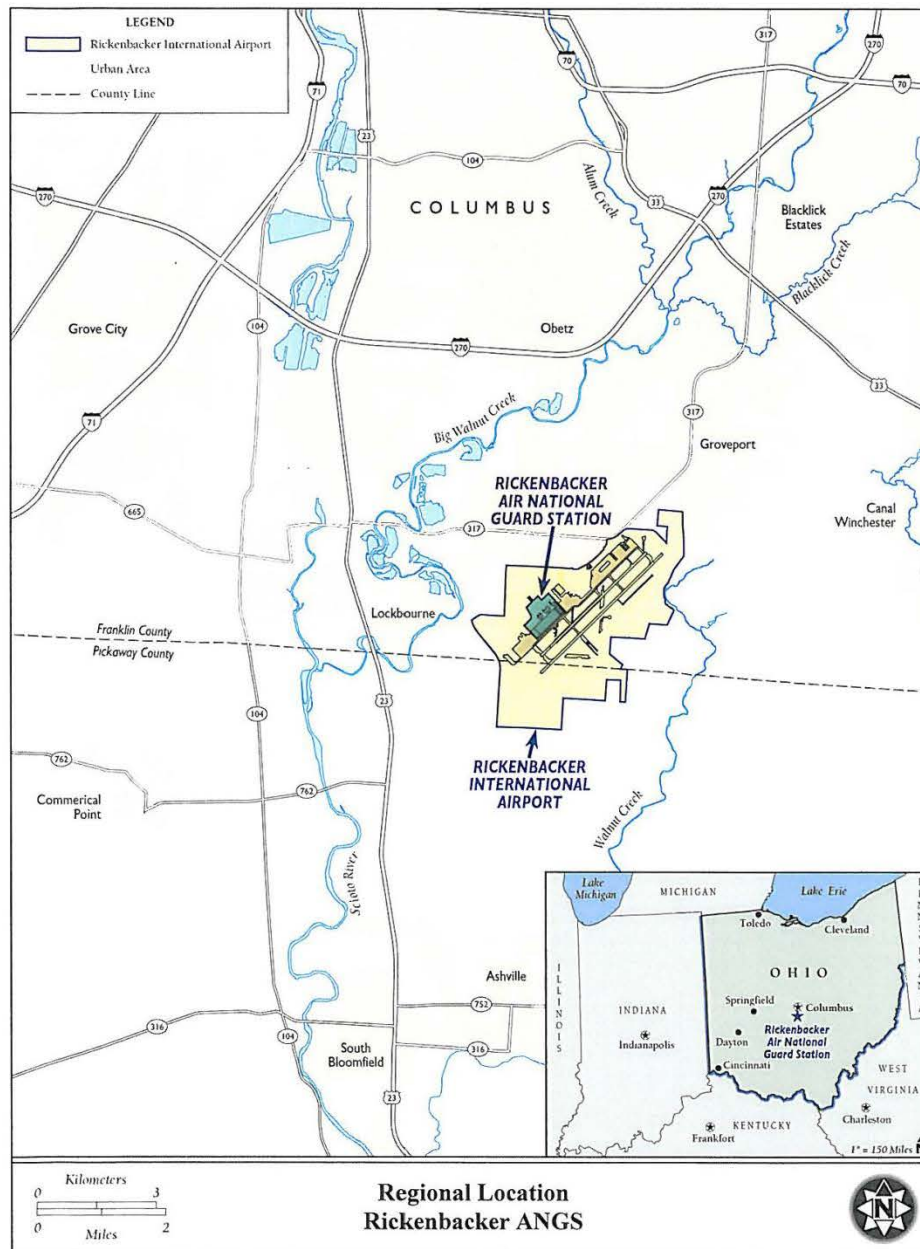
2007 *Cultural Resources Survey of the 121st Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio*. Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. December 2007.

2008 *Cultural Resources Survey of the 121st Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio*. Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. January 2008.

Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

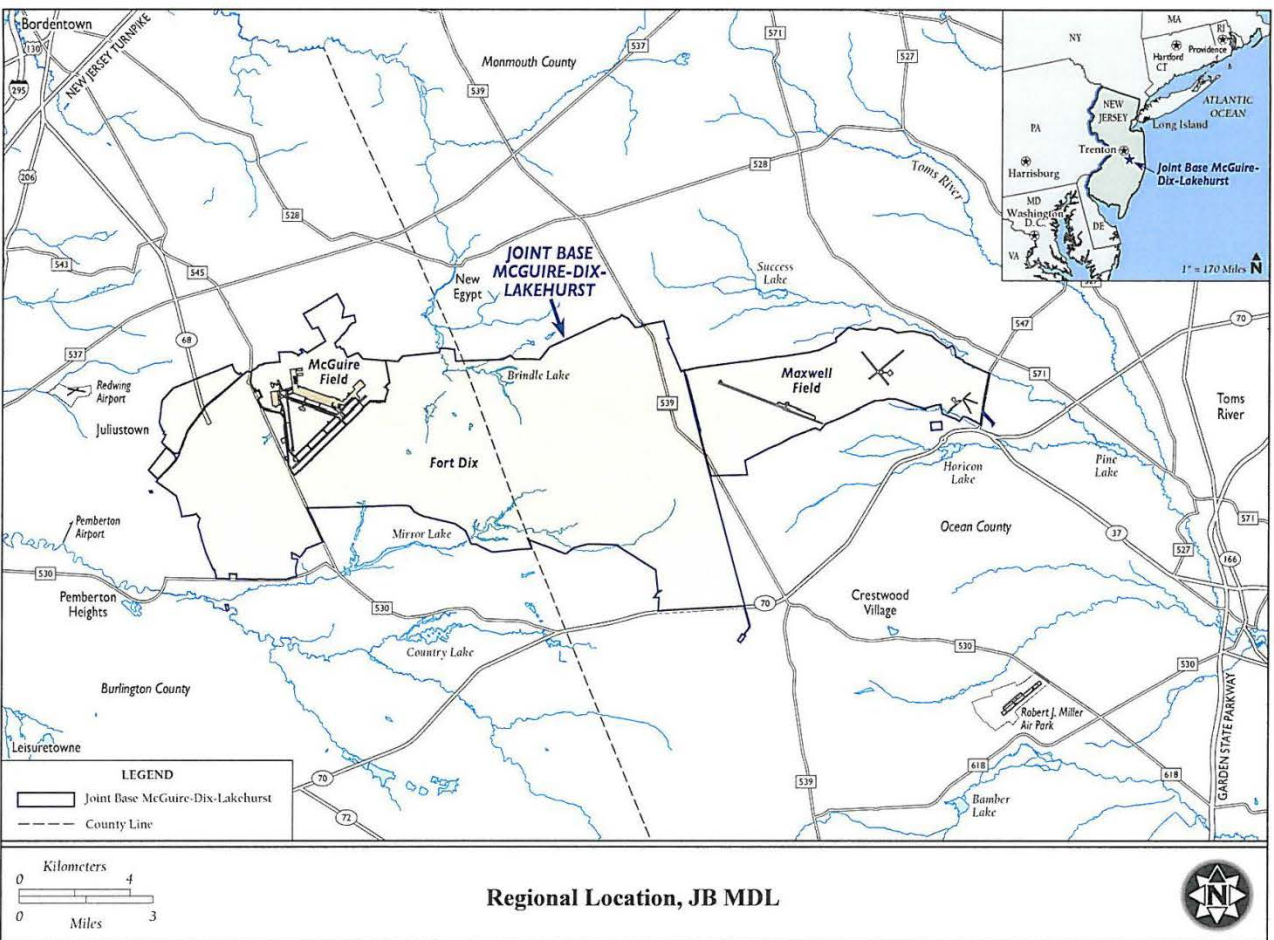


Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

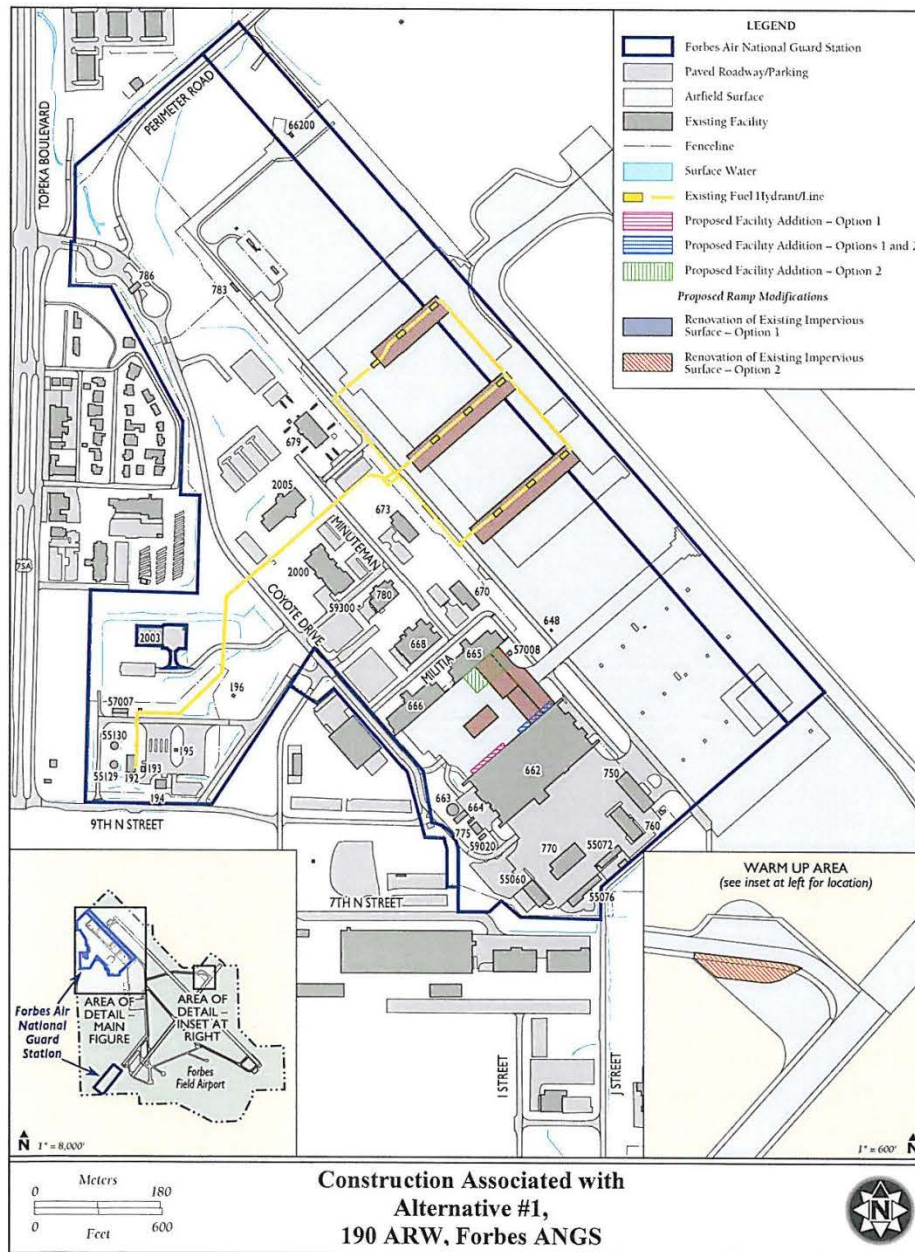




Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

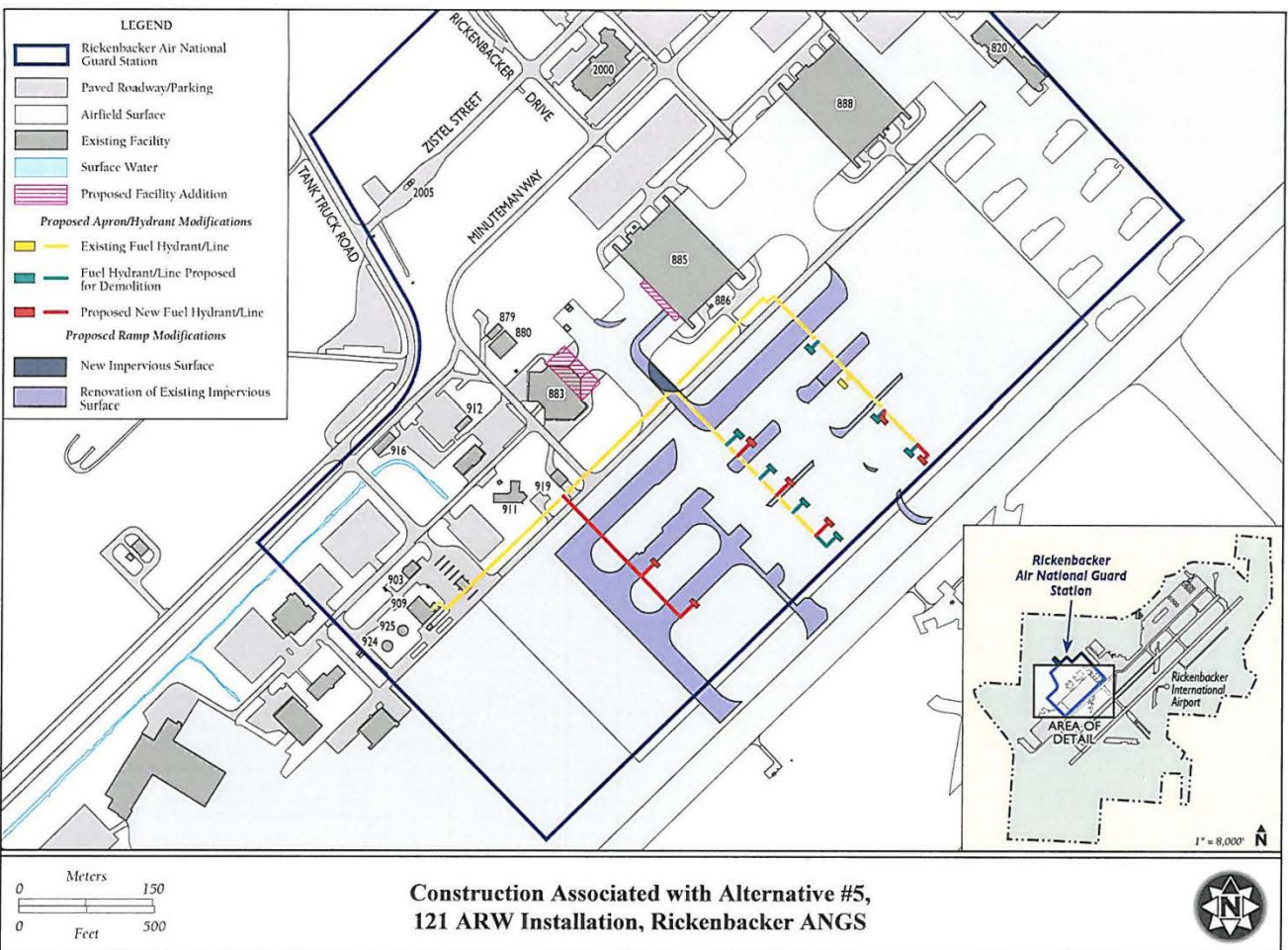


Forbes, JB MDL, and Rickenbacker Sample Tribal Letter

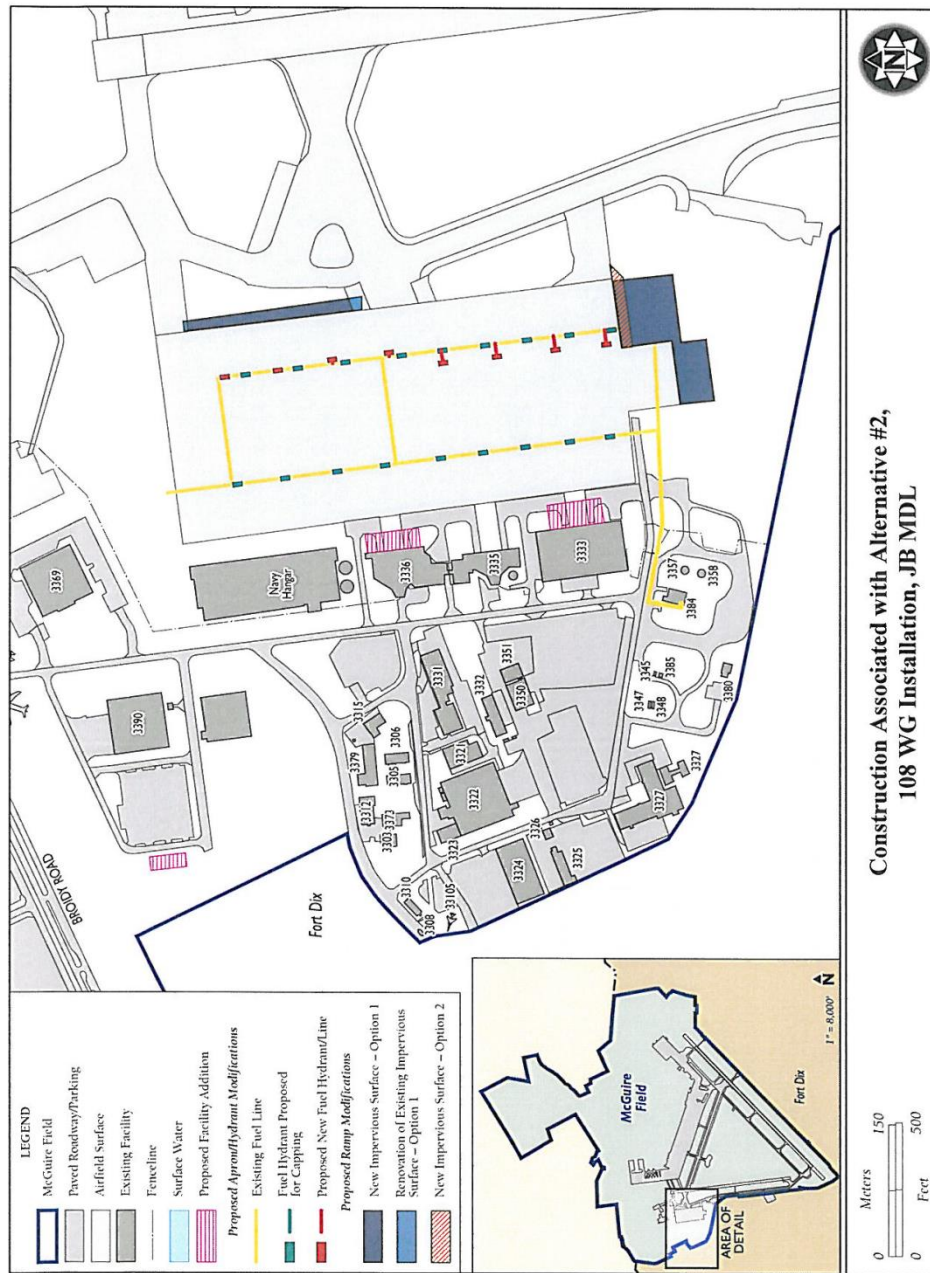




Forbes, JB MDL, and Rickenbacker Sample Tribal Letter



Forbes, JB MDL, and Rickenbacker Sample Tribal Letter



The sample tribal letter following was distributed to the list below:

Steve Ortiz, Chairperson, Prairie Band of Potawatomi Tribe, 16281 Q Rd, Mayetta, KS 66509  
Kelli Mosteller, THPO, Citizen Potawatomi Nation, 1601 S Gordon Cooper Dr, Shawnee, OK 74801  
John Barrett, Chairman, Citizen Potawatomi Nation, 1601 S Gordon Cooper Dr, Shawnee, OK 74801  
Glenna Wallace, Chief, Eastern Shawnee Tribe of Oklahoma, 12755 S 705 Rd, Wyandotte, OK 74370



Forbes and Rickenbacker Sample Tribal Letter

**NATIONAL GUARD BUREAU**

3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

24 September 2013

NGB/A7A

Steve Ortiz  
Chairperson  
Prairie Band of Potawatomi Tribe  
16281 Q Rd  
Mayetta, KS 66509

Dear Chairperson Ortiz

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a Formal Training Unit (FTU) and the first Main Operating Base (MOB 1\*), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit.

Two separate Environmental Impact Statements (EISs) are being prepared for the MOB 1/FTU, and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including both Forbes ANGS in Kansas and Rickenbacker ANGS in Ohio (Attachments 1 and 2). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

\* The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

## Forbes and Rickenbacker Sample Tribal Letter

Page 2

At either Forbes ANGTS or Rickenbacker ANGTS, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the areas of potential effect (APE) for this action to be limited to the portions of the installations where construction, demolition, and renovation activities would occur (Attachments 3 and 4).

At Forbes ANGTS, construction includes options for some of the facilities, but in general consists of: an addition to Hangar 662; either interior modifications or an addition to Hangar 665; internal renovations to Building 679; and an addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron (see Attachment 3).

At Rickenbacker ANGTS, construction activities would include: additions and renovations to Hangar 885; an addition to Hangar 883; interior renovations to Hangar 888; modifications to the aircraft ramp and taxiway; and addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron (see Attachment 4).

The Prairie Band of Potawatomi Tribe has been identified as potentially having historic ties to these locations. In accordance with Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations Parts 800.2, 800.3, and 800.4) and in deference to Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, the 190th Air Refueling Wing (190 ARW) and the 121st Air Refueling Wing (121 ARW) would like to initiate government-to-government consultation regarding the aircraft beddown. In May 2013, as part of the NEPA process, a public participation letter was sent informing various Tribes of the Proposed Action and the locations and times of public information and input meetings. This letter reflects an initiation of the NHPA consultation process under Section 106 for the same action.

Both Forbes ANGTS and Rickenbacker ANGTS have been surveyed for archaeological resources. At Forbes ANGTS no archaeological resources have been identified (KS ANG 2008). At Rickenbacker ANGTS no archaeological resources were encountered during the recent comprehensive surveys of the installation (National Guard Bureau [NGB] 2007, NGB 2008, Snyder 2007). However, a few decades previous to the 2008 inventory during excavations for Building 911, a multi-component site (33FR2844) was uncovered. Site 33FR2844 consisted of a historic burial and a prehistoric lithic scatter. This site was recommended eligible for inclusion on the NRHP when it was discovered in 1985 (121 ARW 2011). This site is the only known significant archaeological resource present within the boundaries of the ANGTS and it is well outside the proposed APE for the undertaking. However, within the proposed APEs or the vicinity of these APEs at either ANGTS, there may be other cultural resources, including



**Forbes and Rickenbacker Sample Tribal Letter**

Page 3

traditional resources, known to the Prairie Band of Potawatomi Tribe that would need to be considered in relation to the proposed undertaking.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 5), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

The 190 ARW and 121 ARW would like to discuss the proposed undertaking in detail with you, and to understand and consider any comments, concerns, and suggestions you may have. In particular, the NGB requests your input as to the status of any traditional resources or historic properties that may be located in or near the proposed APEs for this undertaking at either of these two installations (see attached maps).

Please let us know when you would like to meet to discuss the aircraft beddown proposal and your expectations on how we will accomplish the consultations. You may contact 2d Lt Jarrod Brunkow, Environmental Manager for Forbes ANG, at (785) 861-4402 or [jarrod.brunkow@ang.af.mil](mailto:jarrod.brunkow@ang.af.mil); or Roger Jones, Environmental Manager for Rickenbacker ANG, at (614) 492-4110 or [roger.jones@ang.af.mil](mailto:roger.jones@ang.af.mil). You also may request an individual or group meeting with your Tribe.

We look forward to working with the Prairie Band of Potawatomi Tribe in the NHPA Section 106 and government-to-government consultation processes.

Sincerely



WILLIAM P. ALBRO, P.E., GS-15  
Associate Director, Installations and Mission  
Support

cc:  
2d Lt Jarrod Brunkow, KS ANG  
Colonel James Jones, 121st Wing Commander, OH ANG  
Mr. Roger Jones, OH ANG  
Colonel Ron Krueger, Wing Commander, KS ANG

Forbes and Rickenbacker Sample Tribal Letter

Page 4

Attachments:

1. Vicinity map of Forbes ANG
2. Vicinity map of Rickenbacker ANG
3. Map of Forbes ANG Area of Potential Effect
4. Map of Rickenbacker ANG Area of Potential Effect
5. Draft Description of the Proposed Action and Alternatives

References:

121<sup>st</sup> Air Refueling Wing (121 ARW)

2011 *Integrated Cultural Resources Management Plan*. May 2011.

Kansas Air National Guard (KS ANG)

2008 *Cultural Resources Survey and Evaluation Report for Kansas Air National Guard Properties at Forbes Field, Topeka, Kansas*. Prepared for Kansas Air National Guard and Air National Guard, National Guard Bureau. June 2008.

National Guard Bureau (NGB)

2007 *Cultural Resources Survey of the 121<sup>st</sup> Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio*. Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. December 2007.

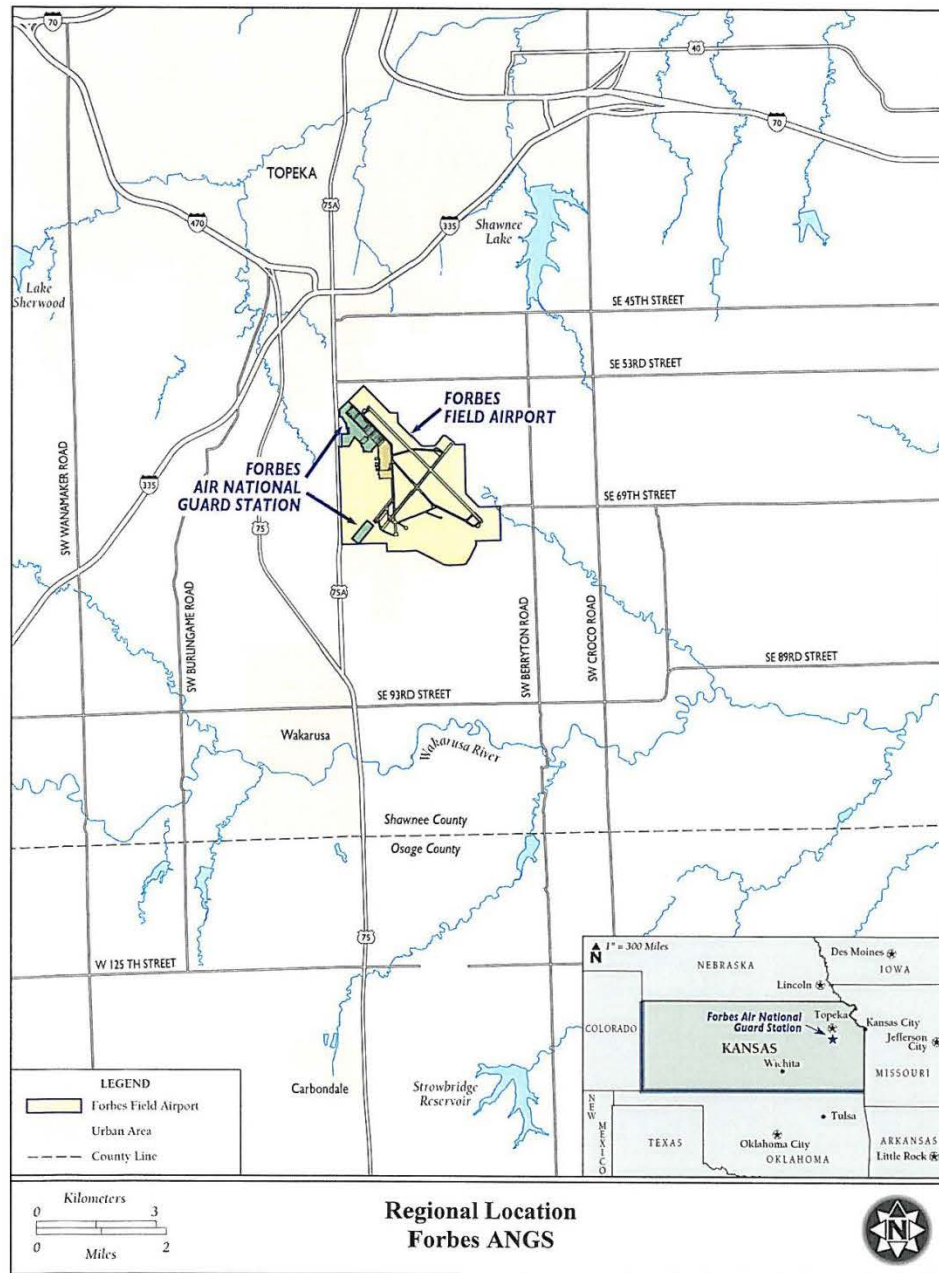
2008 *Cultural Resources Survey of the 121<sup>st</sup> Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio*. Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. January 2008.

Snyder, David

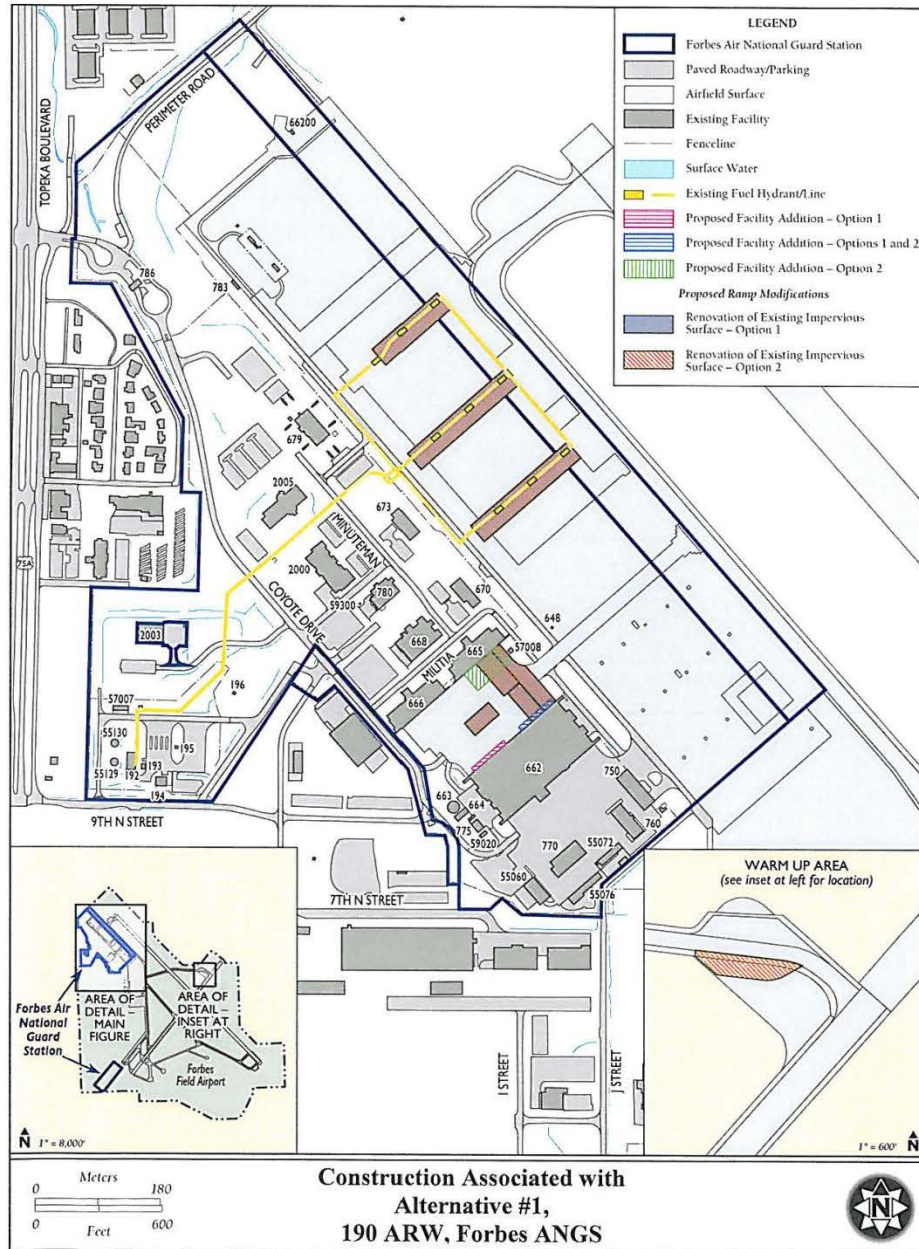
2007 Letter to Matt Nowakowski, National Guard Bureau from David Snyder, Archaeology Review Manager, Resource Protection and Review, Ohio Historic Preservation Office regarding: *121 ARW Ohio ANG, Rickenbacker IAP, Draft Final Cultural Resources Survey, Hamilton Township, Franklin County, Ohio*. August 23, 2007.



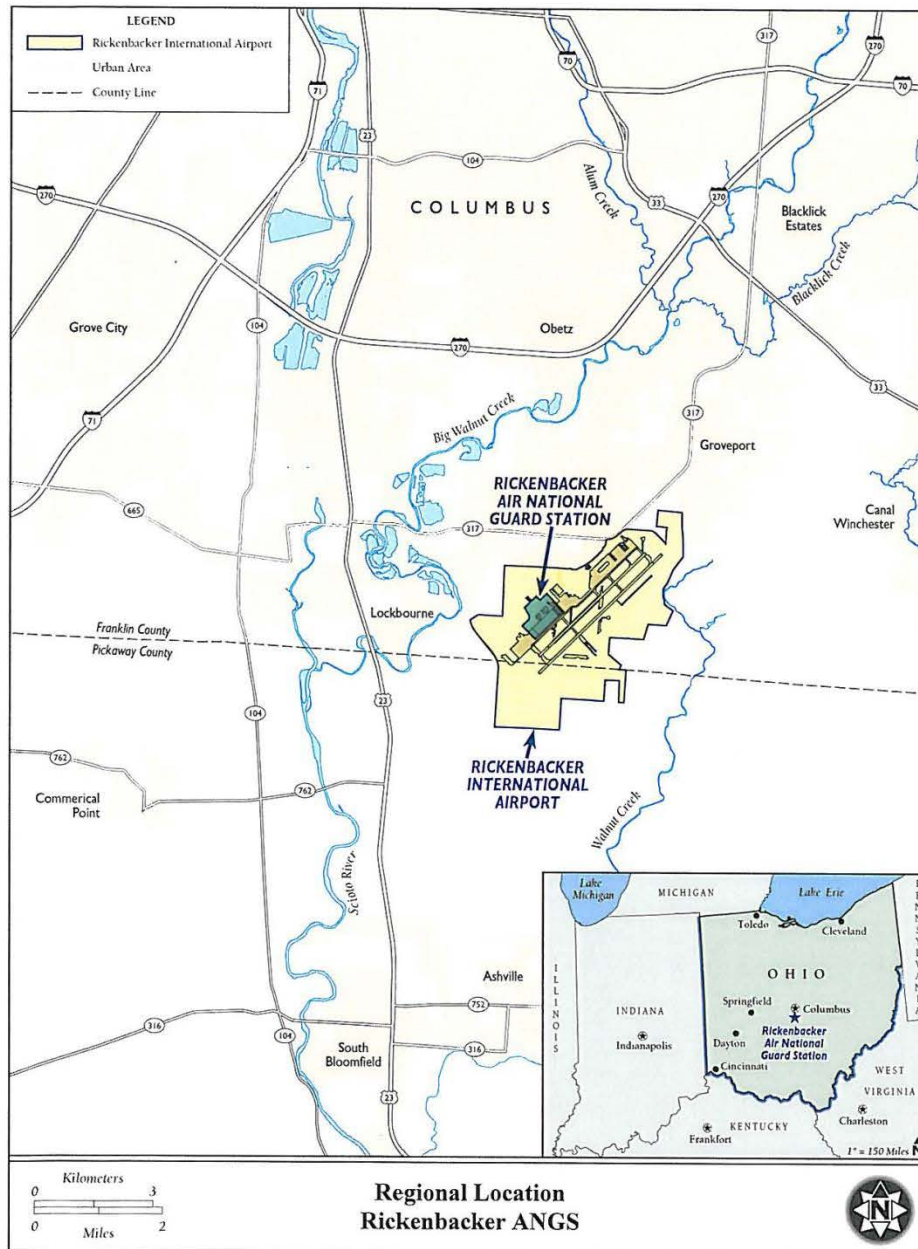
Forbes and Rickenbacker Sample Tribal Letter



Forbes and Rickenbacker Sample Tribal Letter

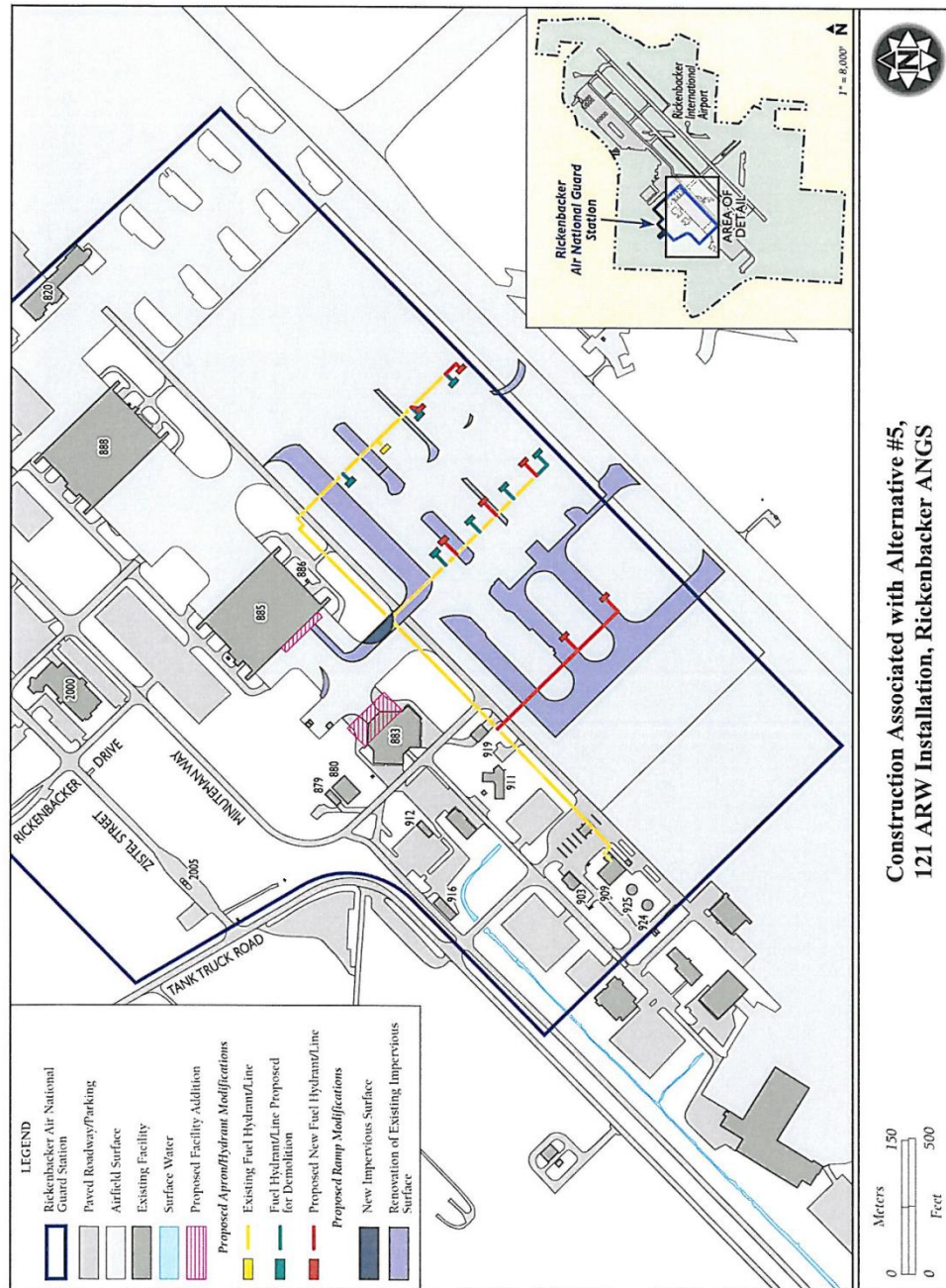


Forbes and Rickenbacker Sample Tribal Letter





Forbes and Rickenbacker Sample Tribal Letter



The sample tribal letter following was distributed to the list below:

Guy Munroe, Chairman, Kaw Nation, Drawer 50, Kaw City, OK 74641

Andrea Hunter, THPO, Osage Nation of Oklahoma, 627 Grandview, Pawhuska, OK 74056

John Redeagle, Principal Chief, Osage Nation of Oklahoma, PO Box 779, 627 Grandview, Pawhuska, OK 74056

George Blanchard, Absentee Shawnee Tribe of Oklahoma, 2025 S Gordon Cooper Dr, Shawnee, OK 74801

Henryetta Ellis, THPO, Absentee Shawnee Tribe of Oklahoma, 2025 S Gordon Cooper Dr, Shawnee, OK 74801

Leslie Standing, President, Wichita and Affiliated Tribes, PO Box 729, Anadarko, OK 73005



**Forbes Sample Tribal Letter**  
**NATIONAL GUARD BUREAU**  
 3501 FETCHET AVENUE  
 JOINT BASE ANDREWS MD 20762-5157

24 September 2013

NGB/A7A

Guy Munroe  
 Chairman  
 Kaw Nation  
 Drawer 50  
 Kaw City, OK 74641

Dear Chairman Munroe

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first Main Operating Base (MOB 1\*), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit.

Two separate Environmental Impact Statements (EISs) are being prepared for the MOB 1/FTU, and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Forbes ANGS in Kansas (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Forbes ANGS as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

\* The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

**Forbes Sample Tribal Letter**

Page 2

At Forbes ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Construction includes options for some of the facilities, but in general there would be an addition to Hangar 662; either interior modifications or an addition to Hangar 665; internal renovations to Building 679; and an addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron.

Kaw Nation has been identified as potentially having historic ties to this location. In accordance with Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations Parts 800.2, 800.3, and 800.4), and in deference to Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, the 190th Air Refueling Wing (190 ARW) would like to initiate government-to-government consultation regarding the aircraft beddown. In May 2013, as part of the NEPA process, a public participation letter was sent informing various Tribes of the Proposed Action and the locations and times of public information and input meetings. This letter reflects an initiation of the NHPA consultation process under Section 106 for the same action.

The 190 ARW would like to discuss the proposed undertaking in detail with you, and to understand and consider any comments, concerns, and suggestions you may have. In particular, the NGB requests your input as to the status of any traditional resources or historic properties that may be located in or near the proposed APE for this undertaking at the Forbes ANG (Attachment 2).

The entire Forbes ANG has been surveyed for archaeological resources and none have been identified (KS ANG 2008). However, within the proposed APE or the vicinity of this APE, there may be other cultural resources, including traditional resources, known to the Kaw Nation that would need to be considered in relation to the proposed undertaking.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.



Forbes Sample Tribal Letter

Page 3

Please let us know when you would like to meet to discuss the proposed aircraft beddown and your expectations on how we will accomplish the consultations. You may contact 2d Lt Jarrod Brunkow, Environmental Manager for Forbes ANG, at (785) 861-4402 or jarrod.brunkow@ang.af.mil. You also may request an individual or group meeting with your Tribe.

We look forward to working with the Kaw Nation in the NHPA Section 106 and government-to-government consultation processes.

Sincerely



WILLIAM P. ALBROW, P.E., GS-15  
Associate Director, Installations and Mission  
Support

cc:  
2d Lt Jarrod Brunkow, KS ANG  
Colonel Ron Krueger, Wing Commander

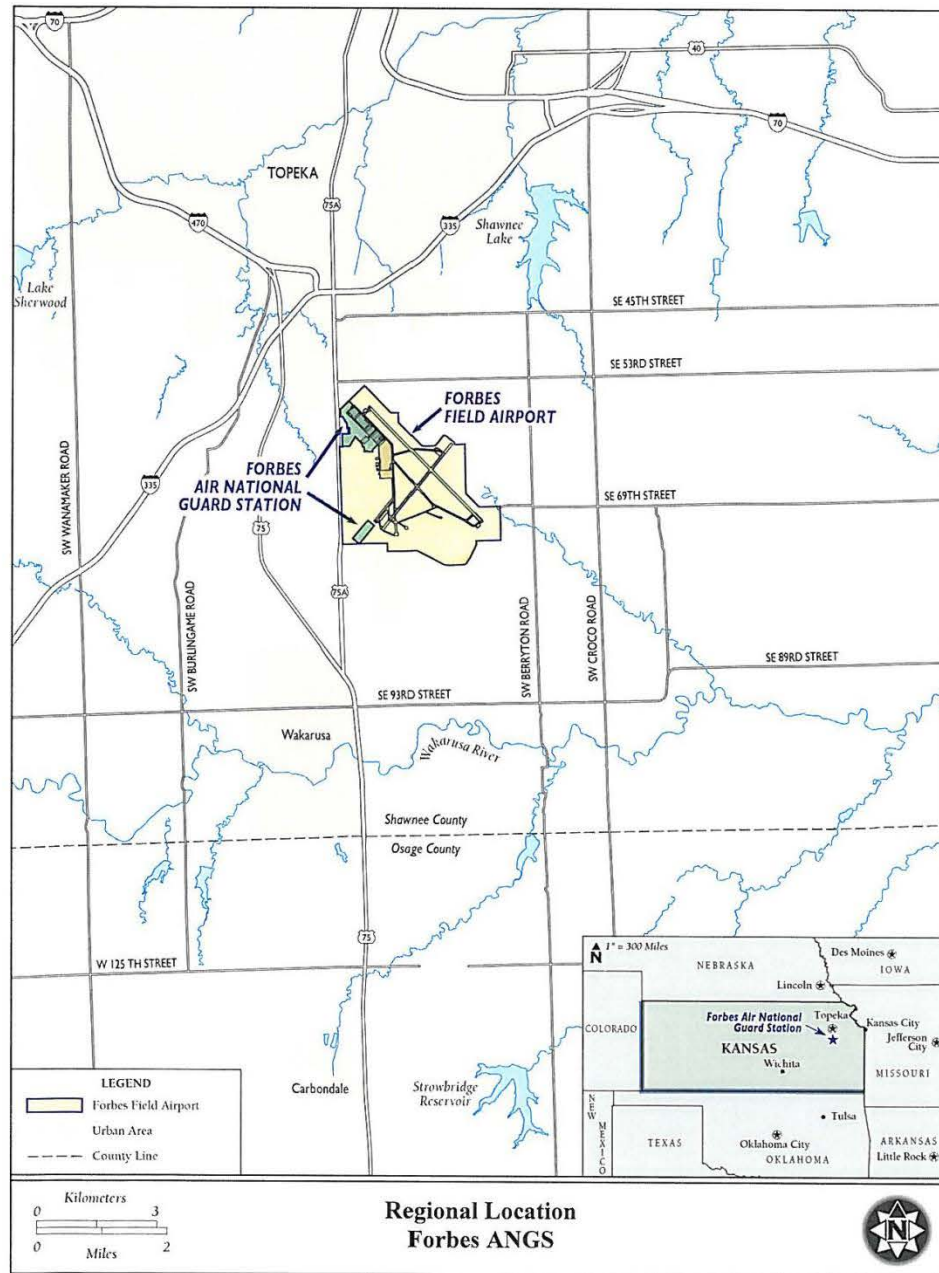
Attachments:

1. Vicinity Map of Forbes ANG
2. Map of Area of Potential Effect
3. Draft Description of the Proposed Action and Alternatives

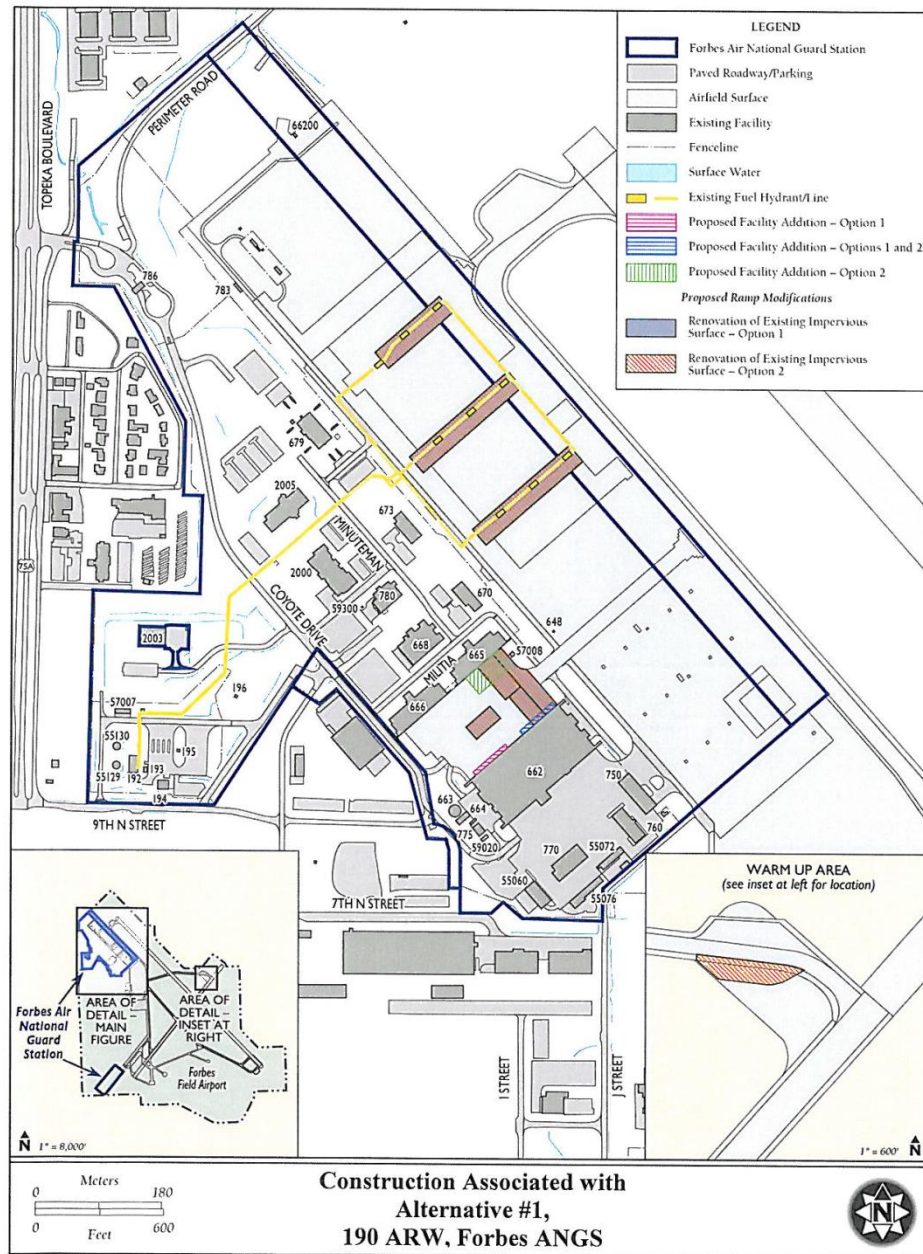
Reference:

Kansas Air National Guard (KS ANG)  
2008 *Cultural Resources Survey and Evaluation Report for Kansas Air National Guard Properties at Forbes Field, Topeka, Kansas*. Prepared for Kansas Air National Guard and Air National Guard, National Guard Bureau. June 2008.

Forbes Sample Tribal Letter



Forbes Sample Tribal Letter



The sample tribal letter following was distributed to the list below:

Brice Obermeyer, THPO, Delaware Tribe of Indians, Department of Sociology and Anthropology, Emporia State University, Roosevelt Hall, Rm 212, 1200 Commercial St, Emporia, KS 66801

Paula Pechonick, Chief, Delaware Tribe of Indians, 170 NE Barbara St, Bartlesville, OK 74006

Chester Brooks, Trust Board Chairman, Delaware Tribe of Indians, 170 NE Barbara St, Bartlesville, OK 74006



JB MDL Sample Tribal Letter  
**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

24 September 2013

NGB/A7A

Brice Obermeyer  
THPO  
Delaware Tribe of Indians  
Department of Sociology and Anthropology, Emporia State University  
Roosevelt Hall, Rm. 212  
1200 Commercial St.  
Emporia, KS 66801

Dear Dr. Obermeyer

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified alternatives for the beddown of a Formal Training Unit (FTU) and the first Main Operating Base (MOB 1\*), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit.

Two separate Environmental Impact Statements (EISs) are being prepared for the MOB 1/FTU, and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including JB MDL in New Jersey (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at JB MDL as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to

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\* The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

**JB MDL Sample Tribal Letter**

Page 2

staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

At JB MDL, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Specifically, these activities would include an addition to Hangar 3333, an addition to Hangar 3336, interior renovations to Hangar 3332, construction of a new 6,700 square foot simulator building west of Building 3390, modifications/additions to the existing aircraft ramp and taxiway, and the addition of eight new fuel hydrants and associated fuel lines on the aircraft parking apron

The Delaware Tribe of Indians has been identified as potentially having historic ties to this location. In accordance with Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations Parts 800.2, 800.3, and 800.4), and Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, the 108th Wing (108 WG) would like to initiate government-to-government consultation regarding the aircraft beddown. In May 2013, as part of the NEPA process, a public participation letter was sent informing various Tribes of the Proposed Action and the locations and times of public information and input meetings. This letter reflects an initiation of the NHPA consultation process under Section 106 for the same action.

The 108 WG would like to discuss the proposal in detail with you, and to understand and consider any comments, concerns, and suggestions you may have. In particular, the NGB requests your input as to the status of any traditional resources or historic properties that may be located in or near the proposed APE for this undertaking at the JB MDL ANG (see attached map).

JB MDL has been surveyed for archaeological resources and none have been identified within the proposed APE (Headquarters Air Mobility Command [HQ AMC] 1995, AMC 1996, Holmes 1996, Holmes *et al.* 1997, McGuire AFB 2003, Holmes and Goar 1998). Three historic archaeological sites were recommended eligible for inclusion in the National Register of Historic Places (NRHP). These sites are all well outside the proposed APE for this undertaking. However, within the proposed APE or the vicinity of this APE, there may be other cultural resources, including traditional resources, known to the Delaware Tribe of Indians that would need to be considered in relation to the proposed undertaking.

## JB MDL Sample Tribal Letter

Page 3

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

Please let us know when you would like to meet to discuss the proposed aircraft beddown and your expectations on how we will accomplish the consultations. You may contact Lt Robert Mendez, Environmental Manager for JB MDL, at (609) 754-3718 or robert.mendez@ang.af.mil. You also may request an individual or group meeting with your Tribe.

We look forward to working with the Delaware Tribe of Indians in the NHPA Section 106 and government-to-government consultation processes.

Sincerely



WILLIAM P. ALBROW, P.E., GS-15  
Associate Director, Installations and Mission  
Support

## cc:

Colonel Kevin Keehn, 108th Wing Commander, JB MDL  
Lt Robert Mendez, JB MDL

## Attachments:

1. Vicinity Map of JB MDL
2. Map of Area of Potential Effect
3. Draft Description of the Proposed Action and Alternatives

## References:

Air Mobility Command (AMC)  
1996 *Inventory of Cold War Properties*. December 1996.

## Headquarters Air Mobility Command (HQ AMC)

1995 *An Archaeological and Historical Resources Inventory of McGuire Air Force Base, New Jersey*. Prepared by Moeller, K.L., D.A. Walitschek, M. Greby, and J.F. Hoffecker of the Argonne National Laboratory for McGuire AFB.



**JB MDL Sample Tribal Letter**

Page 4

Holmes, Richard D.

1996 *Phase II Testing of Four Historic Sites McGuire Air Force Base Burlington County, New Jersey*. April 1996. Prepared by Mariah Associates, Inc., Albuquerque, New Mexico and Lyndhurst, New Jersey. Prepared for US Air Force/Air Mobility Command, Scott Air Force Base, Illinois.

Holmes, Richard D., Toni R. Goar, and Katherine J. Roxlau

1997 *Phase I Archaeological Survey of Areas 4100 and 4200 McGuire Air Force Base, New Hanover Township, Burlington County, New Jersey*. November 1997. Prepared by TRC Mariah Associates, Inc. Prepared for US Army Corps of Engineers New York District and US Air Force/Air Mobility Command Scott Air Force Base, Illinois.

Holmes, Richard D. and Toni R. Goar

1998 *Phase II Site Testing of Four Historic Site McGuire Air Force Base Burlington County, New Jersey*. January 1998. Prepared by TRC Mariah Associates, Inc. Prepared for US Air Force/Air Mobility Command, Scott Air Force Base.

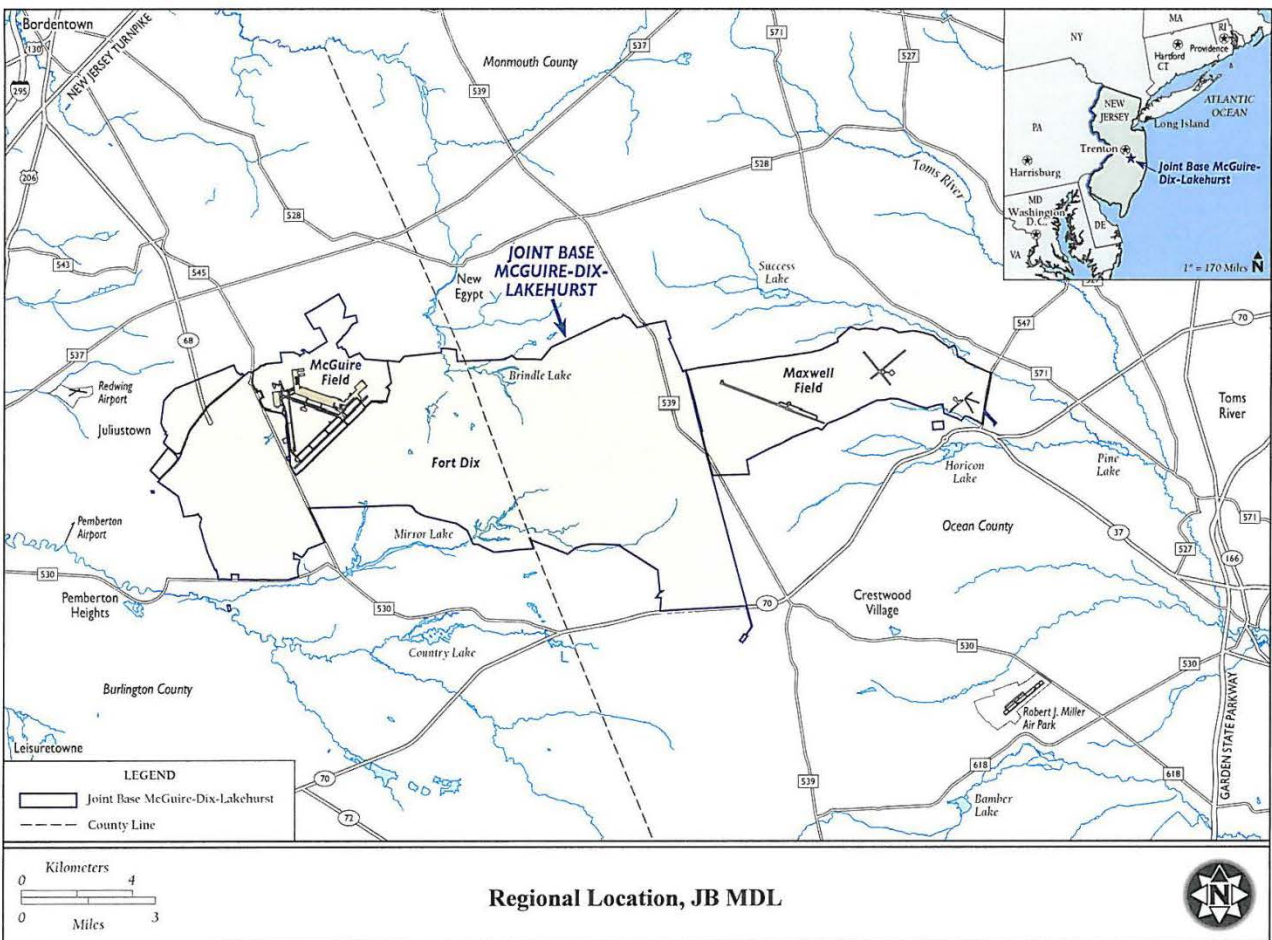
Joint Base McGuire-Dix-Lakehurst (JB MDL)

2013 *Draft Integrated Cultural Resources Management Plan*. 87 CES/CEAN, JB MDL, New Jersey. January 2013.

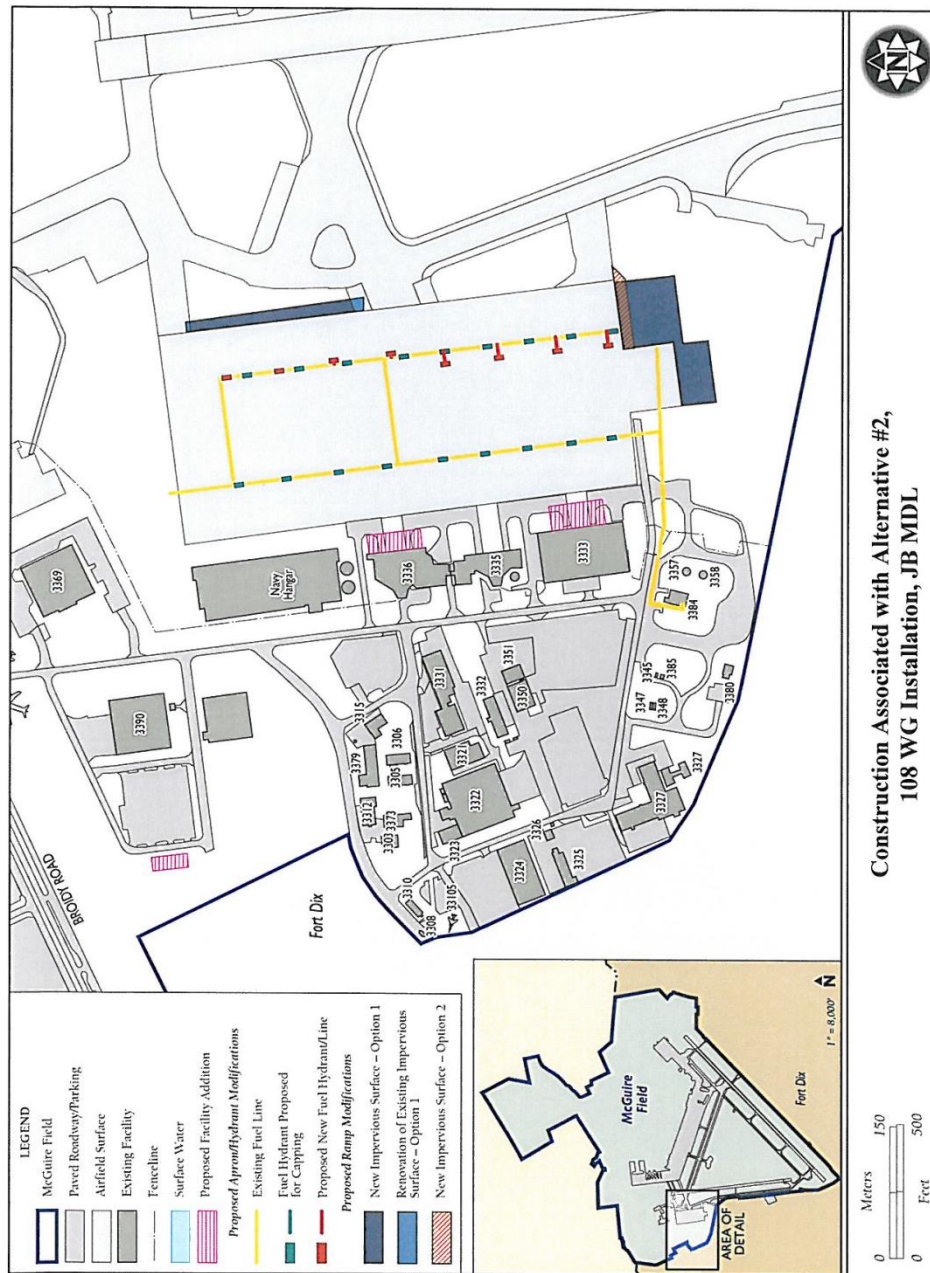
McGuire Air Force Base (AFB)

2003 *Final Integrated Cultural Resources Management Plan*. Prepared 2003. Updated July 2005.

JB MDL Sample Tribal Letter



JB MDL Sample Tribal Letter



## Stockbridge-Munsee Tribal Historic Preservation Office

Sherry White - Tribal Historic Preservation Officer

W13447 Camp 14 Road

P.O. Box 70

Bowler, WI 54416

Date 5-13-11  
 Project Number Joint Base Measure 10; Lakehurst  
 TCNS Number \_\_\_\_\_  
 Company Name Department of Defense

We have received your letter for the above listed project. Before we can process the request we need more information. The additional items needed are checked below.

### Additional Information Required:

- ☐ Site visit by Tribal Historic Preservation Officer
- ☐ Archeological survey, Phase 1
- ☐ Literature/record search including colored maps
- ☐ Pictures of the site
- ☐ Any reports the State Historic Preservation Office may have
- ☐ Has the site been previously disturbed
- ☐ Review fee must be included with letter

If site has been previously disturbed please explain what the use was and when it was disturbed.

Other comments or information needed \_\_\_\_\_

### After reviewing your letter we find that:

\_\_\_\_ "No Properties" the Tribe concurs with a Federal agency's finding that there are no National Register eligible or listed properties within the Federal undertaking's area of potential effect or APE 36CFR 800.4 (d) (1)

\_\_\_\_ "No Effect" historic or prehistoric properties are present but the Federal undertaking will have no effect on the National Register eligible or listed properties as defined in Sec. 800.16(i)

\_\_\_\_ "No Adverse Effect" refers to written opinions provided to a Federal agency as to whether or not the Tribe agrees with (or believes that there should be) a Federal agency finding that its Federal undertaking would have "No Adverse Effect" 36 CFR 800.5(b)

(715) 793-3970

Email: [sherry.white@mohican-nsn.gov](mailto:sherry.white@mohican-nsn.gov)

“Adverse Effect” refers to written opinions provided to a Federal Agency that undertaking would cause Adverse Effects to the area of potential effect on National Register or eligible properties according to the criteria set forth in 36 CFR 800. 5(a) (1), (2) (i)- (vii)

✓ Project not within a county the Mohican Tribe has interest in

Should this project inadvertently uncover a Native American site, we ask that you halt all construction and notify the Stockbridge-Munsee Tribe immediately.

**Please do not resubmit project for changes that are not ground disturbance.**

Sincerely,



Sherry White  
Tribal Historic Preservation Officer

The sample tribal letter following was distributed to the list below:

Kirk Francis, Tribal Chief, Penobscot Indian Nation, 12 Wabanaki Way, Indian Island, ME 04668

Bonnie Newsom, THPO, Penobscot Indian Nation, 12 Wabanaki Way, Indian Island, ME 04468



Pease Sample Tribal Letter  
**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

24 September 2013

NGB/A7A

Kirk Francis  
Tribal Chief  
Penobscot Indian Nation  
12 Wabanaki Way  
Indian Island, ME 04668

Dear Chief Francis

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified alternatives for the beddown of a Formal Training Unit (FTU) and the first Main Operating Base (MOB 1\*), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit.

Two separate Environmental Impact Statements (EISs) are being prepared for the MOB 1/FTU, and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Pease ANGS in New Hampshire (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Pease ANGS as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield

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\* The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.



## Pease Sample Tribal Letter

Page 2

operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

At Pease ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Construction activities would include: renovations and additions to Hangars 251, 252, 253, and 254; construction and upgrade of the aircraft taxiway; repaving of the quad apron; and demolition of existing fuel hydrants and associated fuel lines and installation of new hydrants and lines on the aircraft parking apron.

The Penobscot Indian Nation has been identified as potentially having historic ties to this location. In accordance with Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations Parts 800.2, 800.3, and 800.4), and in deference to Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, the 157th Air Refueling Wing (157 ARW) would like to initiate government-to-government consultation regarding the aircraft beddown. In May 2013, as part of the NEPA process, a public participation letter was sent informing various Tribes of the proposed action and the locations and times of public information and input meetings. This letter reflects an initiation of the NHPA consultation process under Section 106 for the same action.

The 157 ARW would like to discuss the proposed undertaking in detail with you, and to understand and consider any comments, concerns, and suggestions you may have. In particular, the NGB requests your input as to the status of any traditional resources or historic properties that may be located in or near the proposed APE for this undertaking at the Pease ANG (see attached map).

Pease ANG has been surveyed for archaeological resources and none have been identified (157th Air Refueling Wing [157 ARW] 2009). However, within the proposed APE or the vicinity of this APE, there may be other cultural resources, including traditional resources, known to the Penobscot Indian Nation that would need to be considered in relation to the proposed undertaking.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

**Pease Sample Tribal Letter**

Page 3

Please let us know when you would like to meet to discuss the aircraft beddown proposal and your expectations on how we will accomplish the consultations. You may contact Andy Smith, Environmental Manager for Pease ANG, at (603) 430-2336 or [andrew.smith.7@ang.af.mil](mailto:andrew.smith.7@ang.af.mil). You also may request an individual or group meeting with your Tribe.

We look forward to working with the Penobscot Indian Nation in the NHPA Section 106, and government-to-government consultation processes.

Sincerely



WILLIAM P. ALBROW, P.E., GS-15  
Associate Director, Installations and Mission  
Support

cc:

Colonel Paul Hutchinson, 157th Wing Commander, Pease ANG  
Mr. Andy Smith, Pease ANG

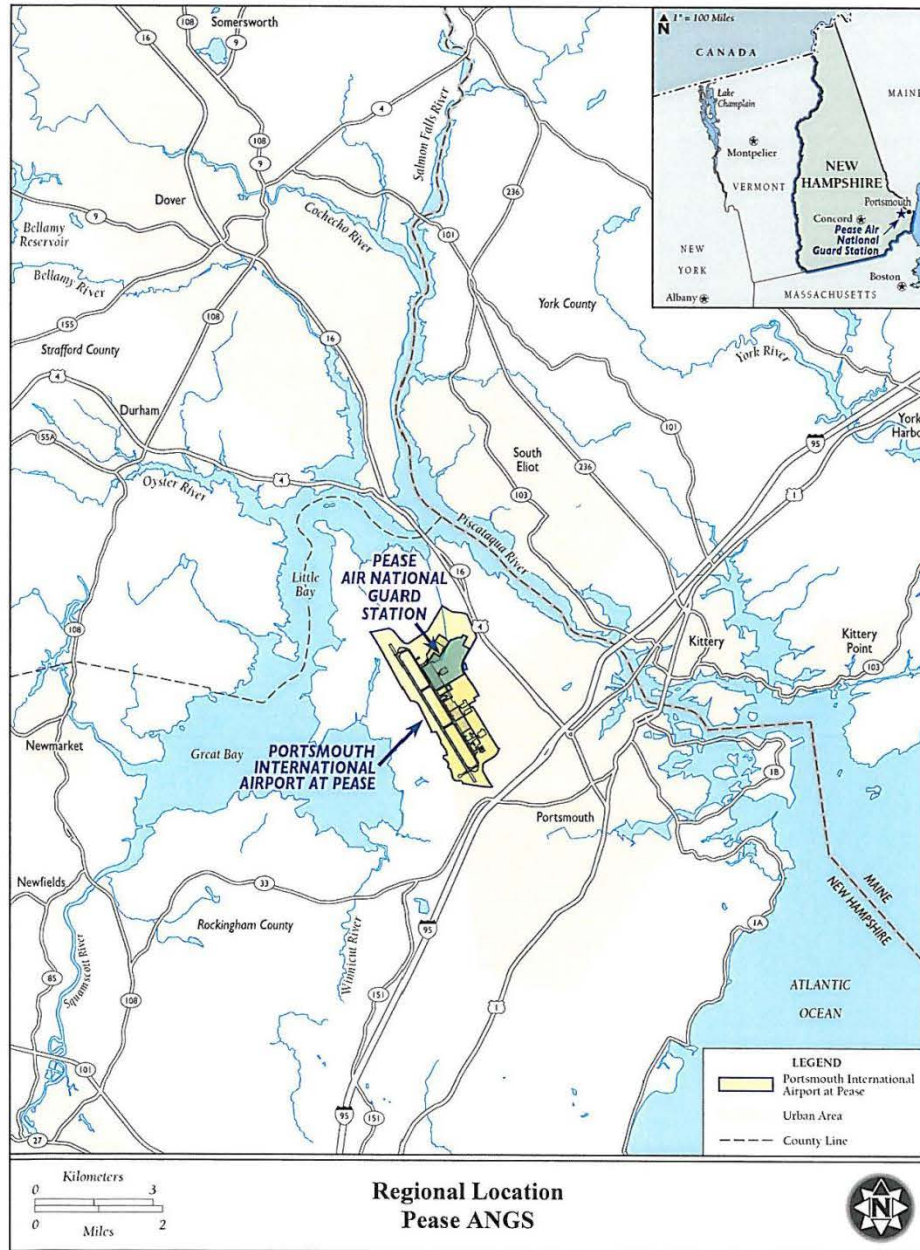
Attachments:

1. Vicinity Map of Pease ANG
2. Map of Area of Potential Effect
3. Draft Description of the Proposed Action and Alternatives

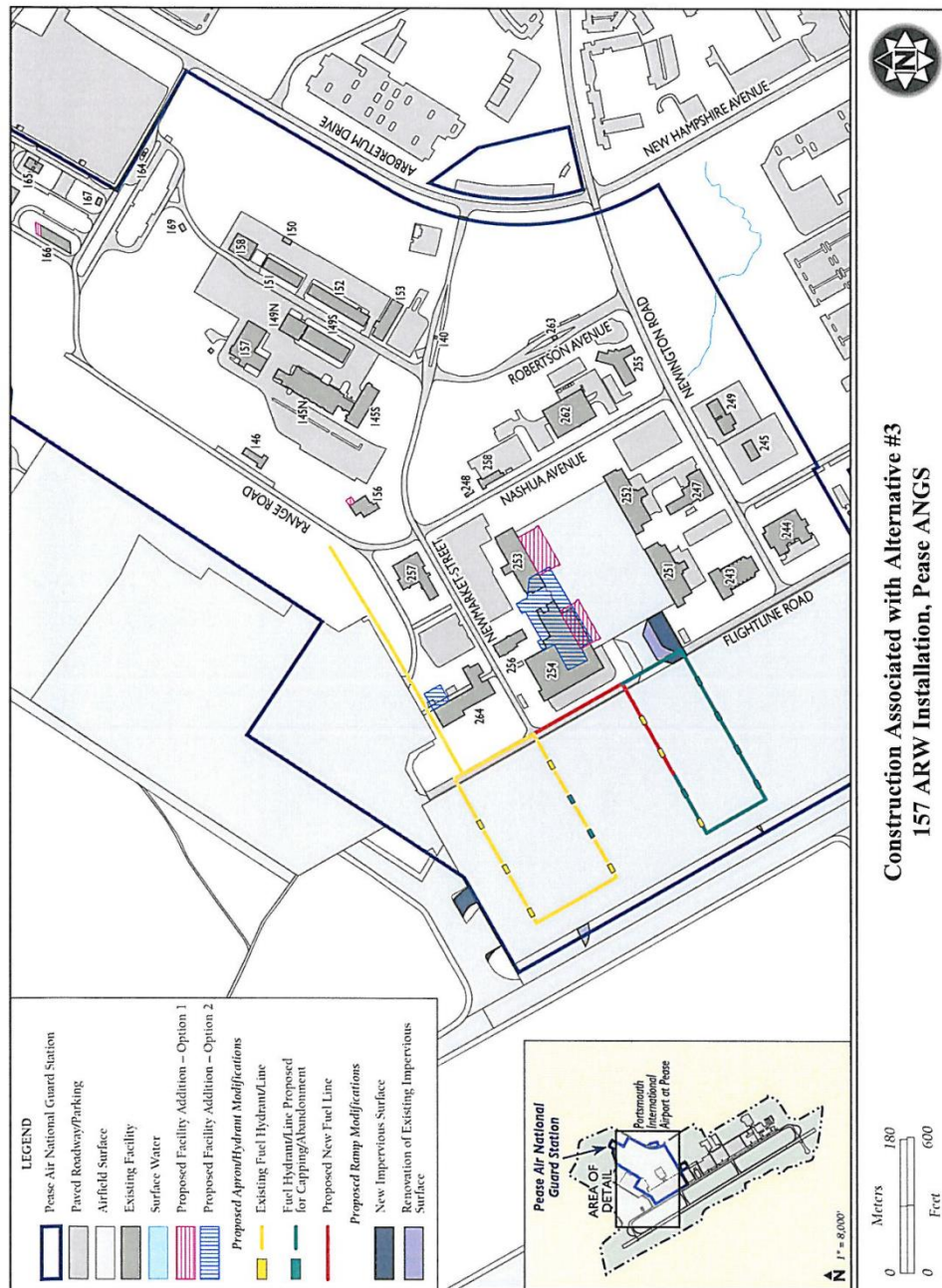
Reference:

157th Air Refueling Wing (157 ARW)  
2009 *Cultural Resources Survey of the 157 Air Refueling Wing, New Hampshire Air National Guard, Pease International Tradeport, Town of Newington, Rockingham County, New Hampshire*. Prepared for New Hampshire Air National Guard and Air National Guard Readiness Center, National Guard Bureau. April 2009.

Pease Sample Tribal Letter



Pease Sample Tribal Letter



The sample tribal letter following was distributed to the list below:

Melinda Maybee, Nation Representative, Cayuga Nation of New York, PO Box 803, Seneca Falls, NY 13148  
Irving Powless, Chief, Onondaga Nation of New York, RRT#1, PO Box 319-B, Nedrow, NY 13120  
Leo Henry, Chief, Tuscarora Nation of New York, 2006 Mt Hope Rd, Lewiston, NY 14092  
Robert Odawi Porter, President, Seneca Nation of Indians, 12837 Rte. 438, Irving, NY 14081  
Lana Watt, THPO, Seneca Nation of Indians, 90 Ohiyo Way, Salamanca, NY 14779  
Roger Hill, Chief, Tonawanda Band of Seneca, 7027 Meadville Rd, Basom, NY 14013





Pittsburgh Sample Tribal Letter  
**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

24 September 2013

NGB/A7A

Melinda Maybee  
Nation Representative  
Cayuga Nation of New York  
PO Box 803  
Seneca Falls, NY 13148

Dear Ms. Maybee

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a Formal Training Unit (FTU) and the first Main Operating Base (MOB 1\*), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit.

Two separate Environmental Impact Statements (EISs) are being prepared for the MOB 1/FTU, and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Pittsburgh ANGS in Pennsylvania (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Pittsburgh ANGS as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of

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\* The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

## Pittsburgh Sample Tribal Letter

Page 2

airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

At Pittsburgh ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Construction activities would include: an addition to Hangar 302; an addition to hangar 320; interior renovations to hangar 301; modifications to the aircraft ramp and taxiway; and the addition of eight new fuel hydrants and associated fuel lines on the aircraft parking apron; and possible demolition or capping of existing fuel hydrants and lines on the parking apron.

The Cayuga Nation of New York has been identified as potentially having historic ties to this location. In accordance with Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations Parts 800.2, 800.3, and 800.4), and in deference to Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, the 171st Air Refueling Wing (171 ARW) would like to initiate government-to-government consultation regarding the aircraft beddown. In May 2013, as part of the NEPA process, a public participation letter was sent informing various Tribes of the Proposed Action and the locations and times of public information and input meetings. This letter reflects an initiation of the NHPA consultation process under Section 106 for the same action.

The 171 ARW would like to discuss the proposed undertaking in detail with you, and to understand and consider any comments, concerns, and suggestions you may have. In particular, the NGB requests your input as to the status of any traditional resources or historic properties that may be located in or near the proposed APE for this undertaking at the Pittsburgh ANG (see attached map).

The entire Pittsburgh ANG has been surveyed for archaeological resources and none have been identified (Cardno TEC, Inc. 2011). Therefore, it is anticipated that no archaeological sites would be affected by the proposed undertaking. However, within the proposed APE or the vicinity of this APE, there may be other cultural resources, including traditional resources, known to the Cayuga Nation of New York that would need to be considered in relation to the proposed undertaking.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of



**Pittsburgh Sample Tribal Letter**

Page 3

the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

Please let us know when you would like to meet to discuss the proposed aircraft beddown and your expectations on how we will accomplish the consultations. You may contact Lt Col John Tower, Environmental Manager for Pittsburgh ANG, at (412) 776-7640 or [john.tower@ang.af.mil](mailto:john.tower@ang.af.mil). You also may request an individual or group meeting with your Tribe.

We look forward to working with the Cayuga Nation of New York in the NHPA Section 106 and government-to-government consultation processes.

Sincerely



WILLIAM P. ALBROW, P.E., GS-15  
Associate Director, Installations and Mission  
Support

cc:

Colonel Steven Painter, 171st Wing Commander, Pittsburgh ANG  
Lt Col John Tower, Pittsburgh ANG

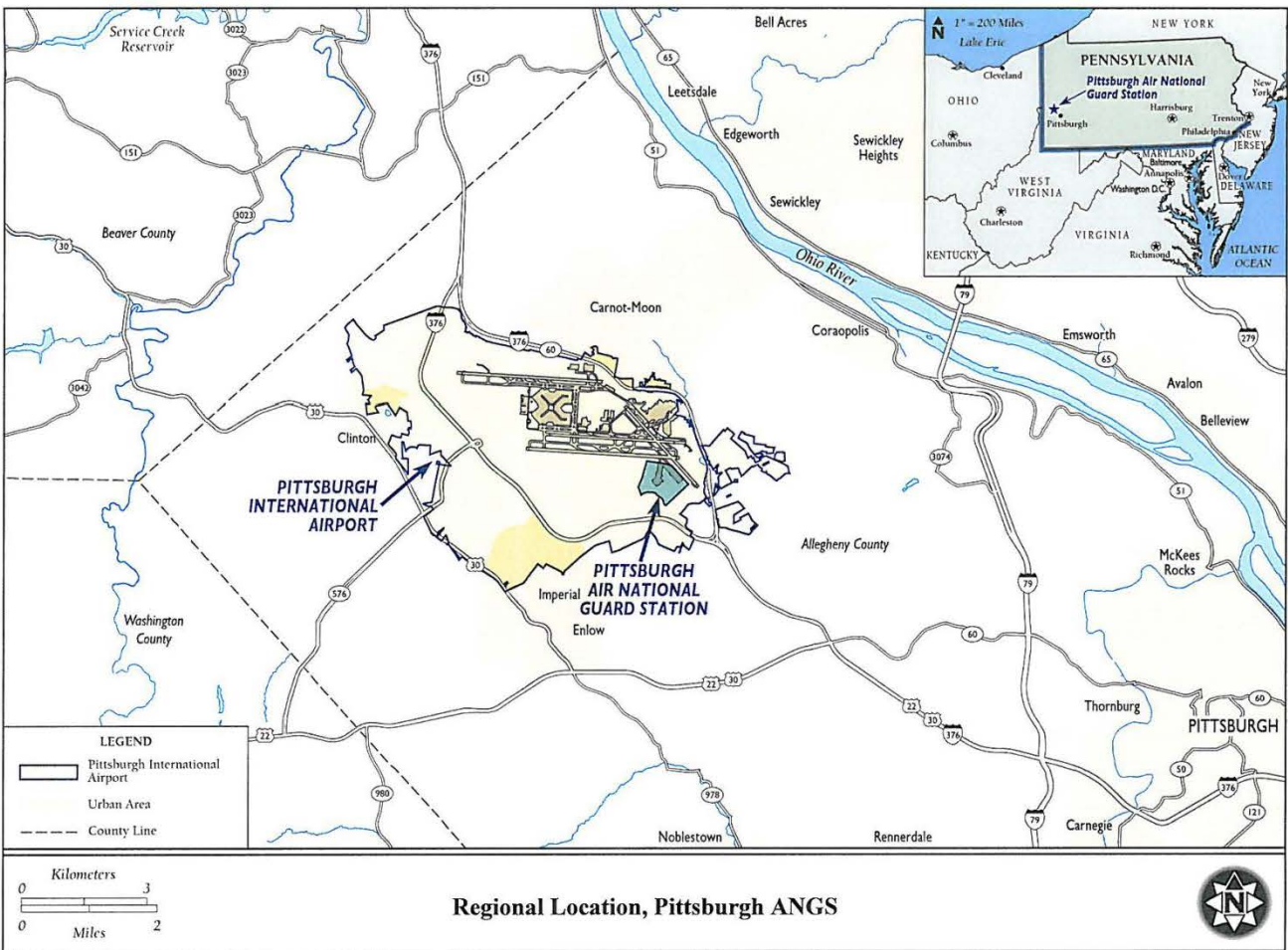
Attachments:

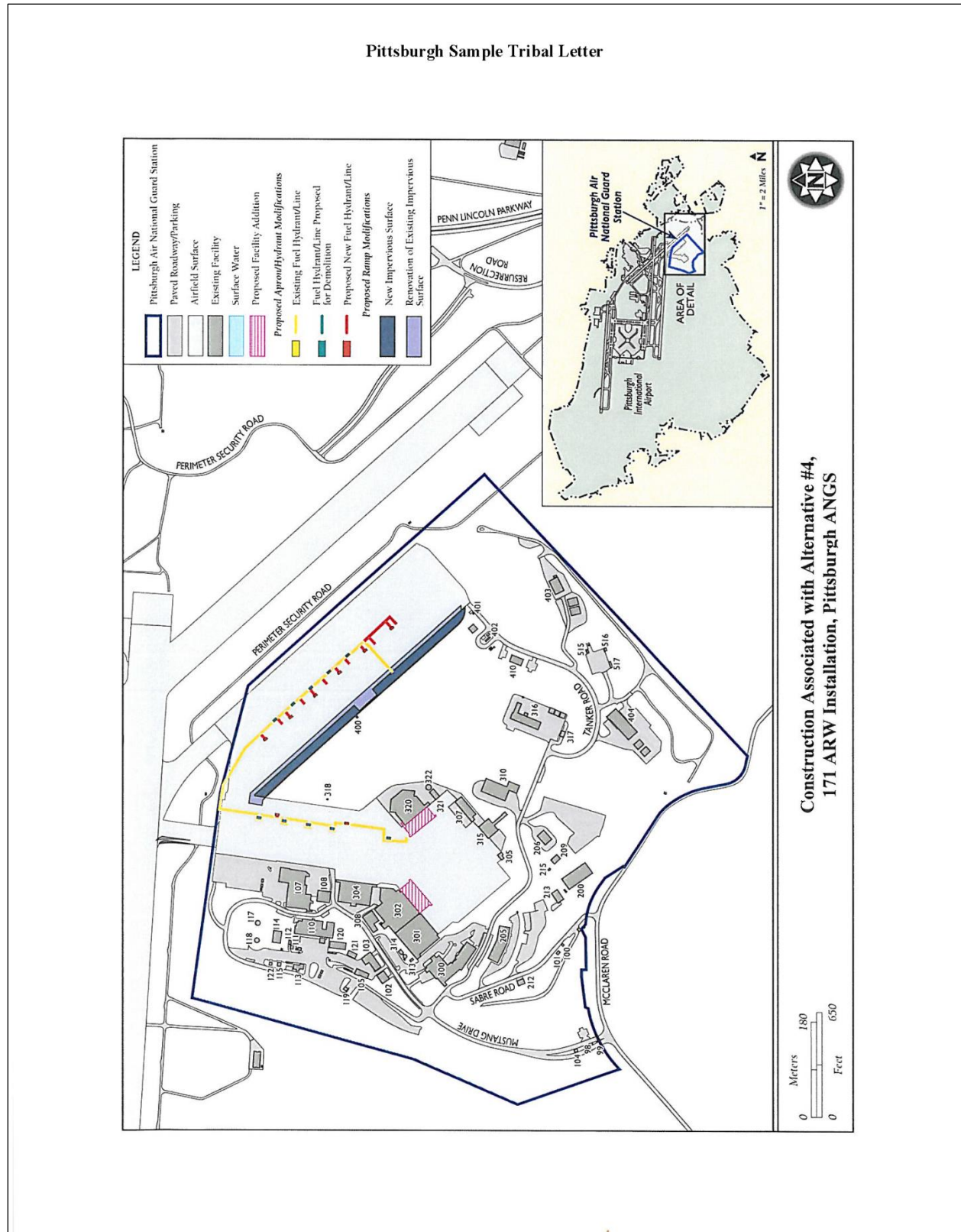
1. Vicinity Map of Pittsburgh ANG
2. Map of Area of Potential Effect
3. Draft Description of the Proposed Action and Alternatives

Reference:

Cardno TEC, Inc.  
2011 *Cultural Resources Survey at the 171 Air Refueling Wing, Pittsburgh, Pennsylvania.*  
Prepared by TEC

Pittsburgh Sample Tribal Letter





The sample tribal letter following was distributed to the list below:

Ron Sparkman, Chief, Shawnee Tribe, PO Box 189, Miami, OK 74355  
Jodi Hayes, Tribe Administrator, Shawnee Tribe, PO Box 189, Miami, OK 74355  
Harold Frank, Chairman, Forest County Potawatomi Community, PO Box 340, Crandon, WI 54520  
Kenneth Meshigaud, Chairperson, Hannahville Indian Community, N14911 Hannahville B1 Rd, Wilson, MI 49896-9728  
George Strack, THPO, Miami Tribe of Oklahoma, PO Box 1326, Miami, OK 74355-1326  
Thomas Gamble, Chairperson, Miami Tribe of Oklahoma, PO Box 1326, Miami, OK 74355-1326  
Ethel áá Cooká, Chief, Ottawa Tribe of Oklahoma, PO Box 110, Miami, OK 74355  
John Froman, Chief, Peoria Tribe of Indians of Oklahoma, PO Box 1527, Miami, OK 74355  
Matthew Wesaw, Chairman, Pokagon Band of Potawatomi Indians, PO Box 180, Dowagiac, MI 49047  
Mike Zimmerman, THPO, Pokagon Band of Potawatomi Indians, PO Box 180, Dowagiac, MI 49047  
Kade Ferris, THPO, Turtle Mountain Band of Chippewa Indians of North Dakota, PO Box 900, Belcourt, ND 58316  
Merle St. Claire, Chairman, Turtle Mountain Band of Chippewa Indians of North Dakota, PO Box 900, Belcourt, ND 58316  
Billy Friend, Chief, Wyandotte Nation, 64700 E Highway 60, Wyandotte, OK 74370  
Sherri Clemons, THPO, Wyandotte Nation, 64700 E Highway 60, Wyandotte, OK 74370



**Rickenbacker Sample Tribal Letter**  
**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

24 September 2013

NGB/A7A

Ron Sparkman  
Chief  
Shawnee Tribe  
PO Box 189  
Miami, OK 74355

Dear Chief Sparkman

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified alternatives for the beddown of a Formal Training Unit (FTU) and the first Main Operating Base (MOB 1\*), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second Main Operating Base (MOB 2), which will be led by an Air National Guard (ANG) unit.

Two separate Environmental Impact Statements (EISs) are being prepared for the MOB 1/FTU, and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Rickenbacker ANGS in Ohio (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Rickenbacker ANGS as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the

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\* The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

## Rickenbacker Sample Tribal Letter

Page 2

number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

At Rickenbacker ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher, and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. Therefore, the National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Construction activities would include: additions and renovations to Hangar 885; an addition to Hangar 883; interior renovations to Hangar 888; modifications to the aircraft ramp and taxiway; and addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron.

The Shawnee Tribe has been identified as potentially having historic ties to this location. In accordance with Section 106 of the National Historic Preservation Act (NHPA) (36 Code of Federal Regulations Parts 800.2, 800.3, and 800.4), and in deference to Executive Order 13175, *Consultation and Coordination with Indian Tribal Governments*, the 121st Air Refueling Wing (121 ARW) would like to initiate government-to-government consultation regarding the aircraft beddown. In May 2013, as part of the NEPA process, a public participation letter was sent informing various Tribes of the Proposed Action and the locations and times of public information and input meetings. This letter reflects an initiation of the NHPA consultation process under Section 106 for the same action.

The 121 ARW would like to discuss the proposed undertaking in detail with you, and to understand and consider any comments, concerns, and suggestions you may have. In particular, the NGB requests your input as to the status of any traditional resources or historic properties that may be located in or near the proposed APE for this undertaking at the Rickenbacker ANG (see attached map).

The entire Rickenbacker ANG has been surveyed for archaeological resources and no significant archaeological resources were encountered (National Guard Bureau [NGB] 2007, NGB 2008, Snyder 2007). However, a few decades previous to the 2008 inventory, during excavations for Building 911 a multi-component site (33FR2844) was uncovered. Site 33FR2844 consisted of a historic burial and a prehistoric lithic scatter. This site was recommended eligible for inclusion on the NRHP when it was discovered in 1985 (121 ARW 2011). This site is the only known significant archaeological resource present within the boundaries of the ANG and it is well outside the proposed APE for the undertaking. However, within the proposed APE or the vicinity of this APE, there may be other cultural resources, including traditional resources, known to the Shawnee Tribe that would need to be considered in relation to the proposed undertaking.



**Rickenbacker Sample Tribal Letter**

Page 3

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

Please let us know when you would like to meet to discuss the proposed aircraft beddown and your expectations on how we will accomplish the consultations. You may contact Roger Jones, Environmental Manager for Rickenbacker ANG, at (614) 492-4110 or [roger.jones@ang.af.mil](mailto:roger.jones@ang.af.mil). You also may request an individual or group meeting with your Tribe.

We look forward to working with the Shawnee Tribe in the NHPA Section 106 and government-to-government consultation processes.

Sincerely



WILLIAM P. ALBROW, P.E., GS-15  
Associate Director, Installations and Mission  
Support

cc:

Colonel James Jones, 121st Wing Commander, OH ANG  
Mr. Roger Jones, OH ANG

Attachments:

1. Vicinity Map of Rickenbacker ANG
2. Map of Area of Potential Effect
3. Draft Description of the Proposed Action and Alternatives

References:

121st Air Refueling Wing (121 ARW)  
2011 *Integrated Cultural Resources Management Plan*. May 2011.

National Guard Bureau (NGB)

2007 *Cultural Resources Survey of the 121st Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio*. Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. December 2007.



**Rickenbacker Sample Tribal Letter**

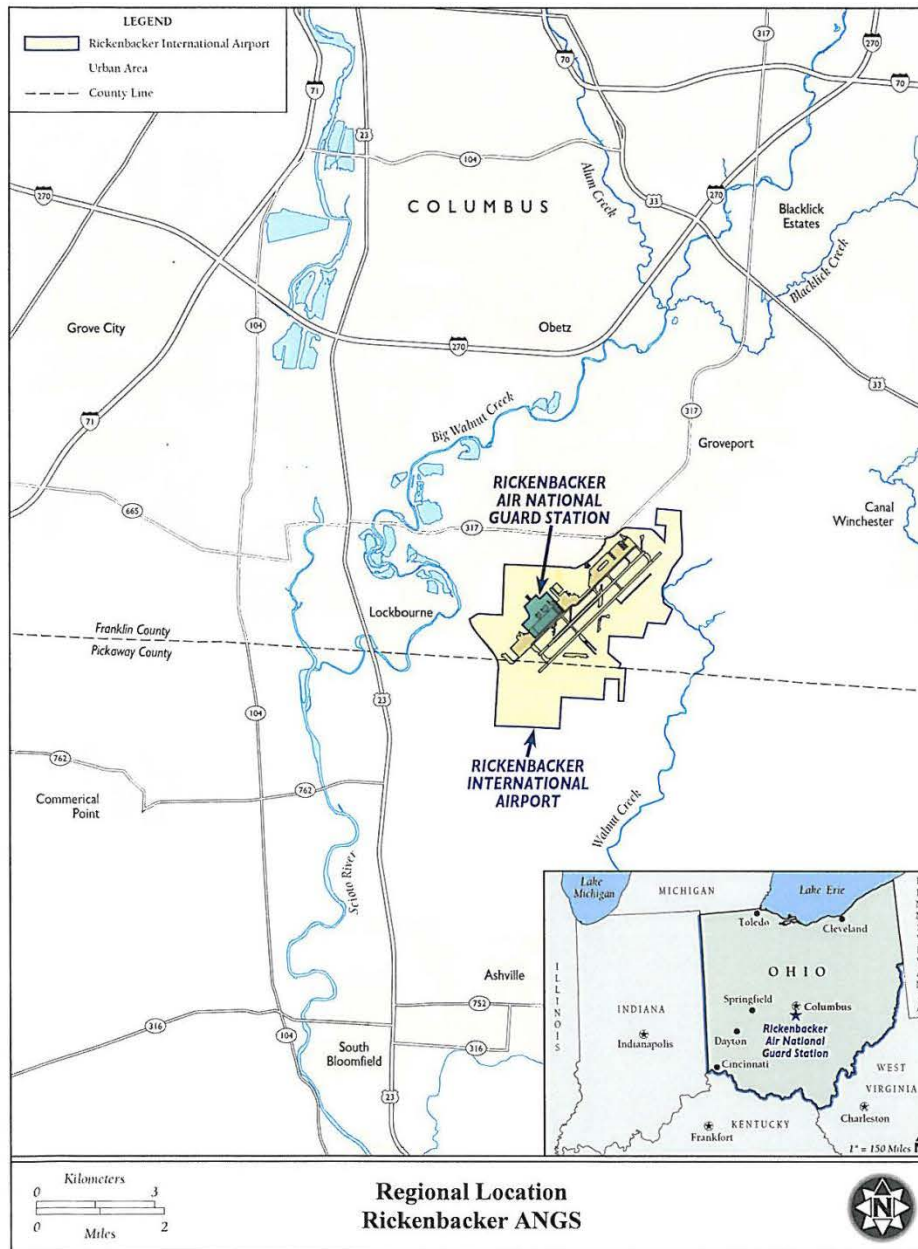
Page 4

2008 *Cultural Resources Survey of the 121st Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio.* Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. January 2008.

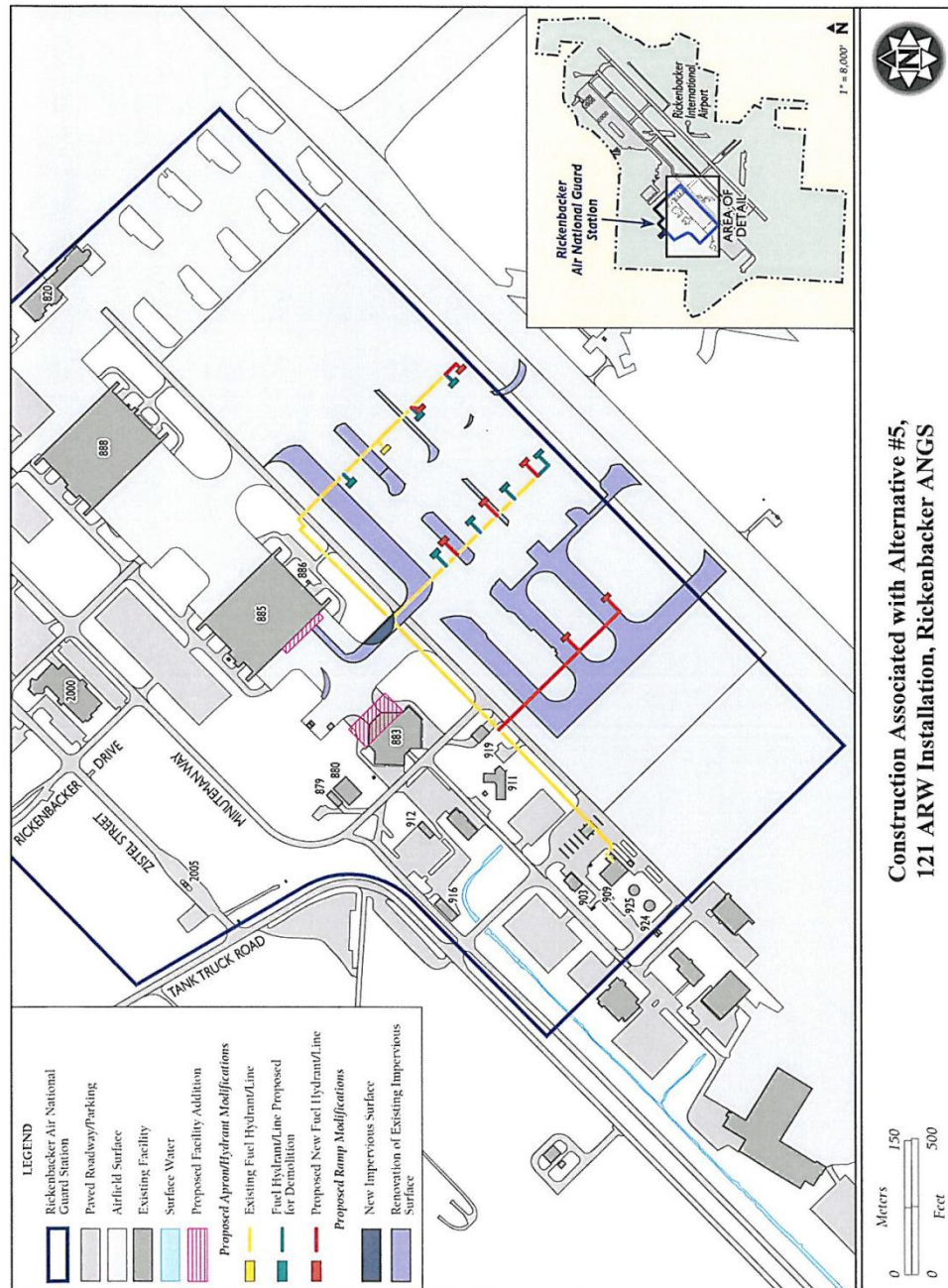
Snyder, David

2007 Letter to Matt Nowakowski, National Guard Bureau from David Snyder, Archaeology Review Manager, Resource Protection and Review, Ohio Historic Preservation Office regarding: *121 ARW Ohio ANG, Rickenbacker IAP, Draft Final Cultural Resources Survey, Hamilton Township, Franklin County, Ohio.* August 23, 2007.

# Rickenbacker Sample Tribal Letter



Rickenbacker Sample Tribal Letter





**PEORIA TRIBE OF INDIANS OF OKLAHOMA**

118 S. Eight Tribes Trail (918) 540-2535 FAX (918) 540-2538

P.O. Box 1527

MIAMI, OKLAHOMA 74355

CHIEF  
John P. Froman

SECOND CHIEF  
Jason Dollarhide

*A7A77  
For the file  
Albro*

October 2, 2013

William P. Albro, P.E., GS-15  
Associate Director, Installations and Mission Support  
National Guard Bureau  
3501 Fetchet Avenue  
Joint Base  
Andrews, MD 20762-5157

Re: KC-46A Beddown at Possible Location of Rickenbacker ANG, Ohio (MOB 2)

Thank you for notice of the referenced project. The Peoria Tribe of Indians of Oklahoma is currently unaware of any documentation directly linking Indian Religious Sites to Rickenbacker ANG. In the event any items falling under the Native American Graves Protection and Repatriation Act (NAGPRA) are discovered during construction, the Peoria Tribe request notification and further consultation.

The Peoria Tribe has no objection to the proposed construction, demolition, and renovation activities. However, if any human skeletal remains and/or any objects falling under NAGPRA are uncovered during construction, the construction should stop immediately, and the appropriate persons, including state and tribal NAGPRA representatives contacted.

Cynthia Stacy  
Special Projects Manager/NAGPRA  
Peoria Tribe of Indians of Oklahoma  
918-540-2535 Ext. 31  
FAX: 918-540-2538  
[cstacy@peoriatribe.com](mailto:cstacy@peoriatribe.com)

TREASURER  
Aaron Wayne Blalock

SECRETARY  
Don Giles

FIRST COUNCILMAN  
Carolyn Ritchey

SECOND COUNCILMAN  
Craig Harper

THIRD COUNCILMAN  
Alan Goforth

-----Original Message-----

From: Jay Toth [<mailto:jay.toth@sni.org>]

Sent: Thursday, October 03, 2013 9:36 AM

To: Tower, John LtCol USAF ANG 171 MDG/SGPB

Subject: MOB 1&2/sec. 106

Seneca HP has no issue regarding the EIS for the MOBs.

JAY toth., MA., MS.

Seneca Nation Tribal archeologist

90 OHI:WAY

Salamanca, NY 14779

(716)945-1790/ ext. 3582



**Delaware Tribe Historic Preservation Office**

1200 Commercial St.  
Roosevelt Hall, RM 212  
Emporia State University  
Emporia, KS 66801  
(620) 341-6699

[hobermeyer@delawaretribe.org](mailto:hobermeyer@delawaretribe.org)

October 4, 2013

National Guard Bureau  
3501 Fetchett Avenue  
Joint Base Andrews, MD 20762-5157

Re: Replacement of KC-135 Fleet with KC-46A fleet

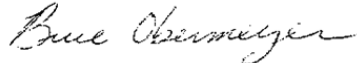
Dear Michael B. Hornum:

Thank you for providing the survey report for the above referenced project. Our review also indicates that there are no religious or culturally significant sites in this project area and we have no objection to the proposed project. We defer comment to your office as well as to the State Historic Preservation Office and/or the State Archaeologist.

However, we ask that if any human remains are accidentally unearthed during the course of the project that you cease development immediately and inform the Delaware Tribe of Indians of the inadvertent discovery.

If you have any questions, feel free to contact this office by phone at (620) 341-6699 or by e-mail at [hobermeyer@delawaretribe.org](mailto:hobermeyer@delawaretribe.org).

Sincerely,



Brice Obermeyer  
Delaware Tribe Historic Preservation Office  
1200 Commercial St  
Roosevelt Hall, RM 212  
Emporia State University  
Emporia, KS 66801

-----Original Message-----

From: Chris Sockalexis [<mailto:Chris.Sockalexis@penobscotnation.org>]

Sent: Tuesday, December 31, 2013 11:24 AM

To: Eck, Christopher R Civ USAF ANG NGB/A7AM

Subject: RE: US Air Force Replacement of KC-135 Air Refueling Fleet with KC-46A Aircraft, Pease Air National Guard Base, New Hampshire

Good Afternoon,

I have reviewed the proposed project by the United States Air Force National Guard Bureau. This includes the replacement of the existing KC-135 air refueling fleet with the KC-46A fleet. This project consists of the beddown of the new KC-46A fleet at Pease Air National Guard Station in Portsmouth, NH.

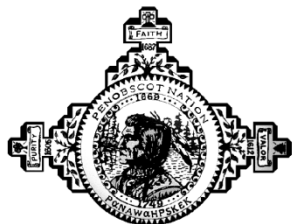
I have attached my "No Objection" letter to this email.

Thank you for consulting with the Penobscot Nation on this project.

Sincerely,

Chris Sockalexis, THPO  
Penobscot Nation





PENOBSCOT NATION  
CULTURAL & HISTORIC PRESERVATION DEPARTMENT  
12 WABANAKI WAY, INDIAN ISLAND, ME 04468  
CHRIS SOCKALEXIS – TRIBAL HISTORIC PRESERVATION OFFICER  
E-MAIL: [chris.sockalexis@penobscotnation.org](mailto:chris.sockalexis@penobscotnation.org) FAX: 207-817-7450

NAME	Christopher Eck
ADDRESS	Air National Guard NGB/A7AM Shepperd Hall 3501 Fetchet Avenue Joint Base Andrews, MD 20762
OWNER'S NAME	United States Air Force
TELEPHONE	(240) 612-7482
FAX	
EMAIL	Christopher.Eck.1@ang.af.mil
PROJECT NAME	Replace existing KC-135 air refueling fleet with the KC-46A at Pease ANG, New Hampshire
PROJECT SITE	Portsmouth, NH
DATE OF REQUEST	September 24, 2013
DATE REVIEWED	December 31, 2013

Thank you for the opportunity to comment on the above referenced project. This project appears to have no impact on a structure or site of historic, architectural or archaeological significance to the Penobscot Nation as defined by the National Historic Preservation Act of 1966, and subsequent updates.

Also, if Native American cultural materials are encountered during the course of the project, please contact me at (207) 817-7471. Thank you.

A handwritten signature in black ink, appearing to read "Chris Sockalexis".

CHRIS SOCKALEXIS, THPO  
Penobscot Nation

-----Original Message-----

From: Crystal Douglas [[mailto:crystal\\_douglas@kawnation.com](mailto:crystal_douglas@kawnation.com)]

Sent: Friday, November 22, 2013 5:09 PM

To: Eck, Christopher R Civ USAF ANG NGB/A7AM

Subject: [MALWARE FREE]RE: Air National Guard KC-46A Follow-Up

Thank you for the information, The Kaw Nation was in this area in the late 1700s and early 1800s. We would like you to notify us if you discover any human remains or culturally affiliated artifacts. We have no objecting to this endeavor we hope you will be able to progress on schedule.

Crystal Douglas  
Tribal Historic Preservation Officer  
Kaw Nation

-----Original Message-----

From: Clint [<mailto:clint.halftown@gmail.com>]

Sent: Saturday, January 11, 2014 1:24 AM

To: Eck, Christopher R Civ USAF ANG NGB/A7AM

Subject: Re: Air National Guard KC-46A Follow-Up

Dear Mt. ECM,

Greetings from the Cayuga Nation.

While I believe the proposed project will not have an adverse impact upon cultural items possible it'll related to the Cayuga Nation.

If you should come into contact with with any items, I wish for you to contact me immediately

If possible, I would like to view this proposed site.

Any questions, please contact me at 315-568-0750.

Oneh,

Clint Halftown

Cayuga Nation

Sent from my iPad

-----Original Message-----

From: Sherry White [mailto:[sherry.white@mohican-nsn.gov](mailto:sherry.white@mohican-nsn.gov)]

Sent: Wednesday, January 22, 2014 5:12 PM

To: Eck, Christopher R Civ USAF ANG NGB/A7AM

Subject: RE: US Air Force Replacement of KC-135 Air Refueling Fleet Aircraft  
with KC-46A Aircraft

Mr. Eck

Thank you for providing me this information. The Stockbridge-Munsee Tribe has  
no concern with this project and agrees that no adverse effect will take  
place.

Sherry White

Tribal Historic Preservation Officer

**Appendix B3**

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***State Historic Preservation Office (SHPO)  
Correspondence***





**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

12 September 2013

Jennie Chinn  
Kansas State Historical Society  
Cultural Resources Division  
6425 SW 6<sup>th</sup> Ave  
Topeka, KS 66615-1099

Dear Ms. Chinn

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action. This correspondence is provided to initiate consultation with your office, pursuant to 36 Code of Federal Regulations (CFR) 800.3 for the Undertaking. Section 106 consultation for this project will be parallel to, but conducted separately from the EIS.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Forbes ANGS in Kansas (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Forbes ANGS as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.



Page 2

staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

At Forbes ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHIPA) as outlined in 36 CFR 800.3.

The National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this undertaking to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Construction includes options for some of the facilities, but in general there would be an addition to Hangar 662; either interior modifications or an addition to Hangar 665; internal renovations to Building 679; and an addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron. Specific interior renovations to Building 679 include adding shelving, altering ceiling panels, removing and constructing interior walls, and addition of stairs and railings.

The entire Forbes ANG has been surveyed for archaeological resources (KS ANG 2008). This cultural resources survey also included an inventory and evaluations of architectural resources at the Forbes ANG and as a result, one building (Building 679) was determined eligible for inclusion in the NRHP under Criteria A and C for its contributions to the US military Cold War mission (Zollner 2008). A Memorandum of Agreement was signed regarding Building 679 in 2009 and in 2010 the building was entirely remodeled following the completion of mitigation measures suggested and approved by your office. For this undertaking, minor interior renovations are proposed to Building 679, which would not affect the current displays erected as part of the earlier mitigation for this building (Attachment 3).

The NGB has identified no potential adverse effects to Building 679. Therefore, it is anticipated that no sites or buildings considered eligible for the NRHP would be affected by the proposed undertaking. We request your concurrence with the proposed APE, our identification of historic properties, and our assessment on the effects of this proposal on historic properties.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 4), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

The NGB is in the process of consulting with federally recognized American Indian Tribes concerning the Undertaking (Attachment 5). We are also contacting the public and relevant regional Archaeological Society offices both through the NEPA process and through Section 106 of the NHPA. All comments we receive, and any concerns expressed to the NGB, will be taken into consideration while planning for this undertaking. Please send your recommendations to the KC-46A MOB 2 Project Manager, Ms. Anne Rowe, at [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil). If you have any questions regarding this consultation, Ms. Rowe can also be reached at (240) 612-8636.

Sincerely



ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

Attachments: 1 – Vicinity map of Forbes ANG  
2 – Map of Area of Potential Effect  
3 – Plans of interior renovations to Building 679  
4 – Draft Description of the Proposed Action and Alternatives  
5 – Federally Recognized Tribes Associated with Forbes ANG

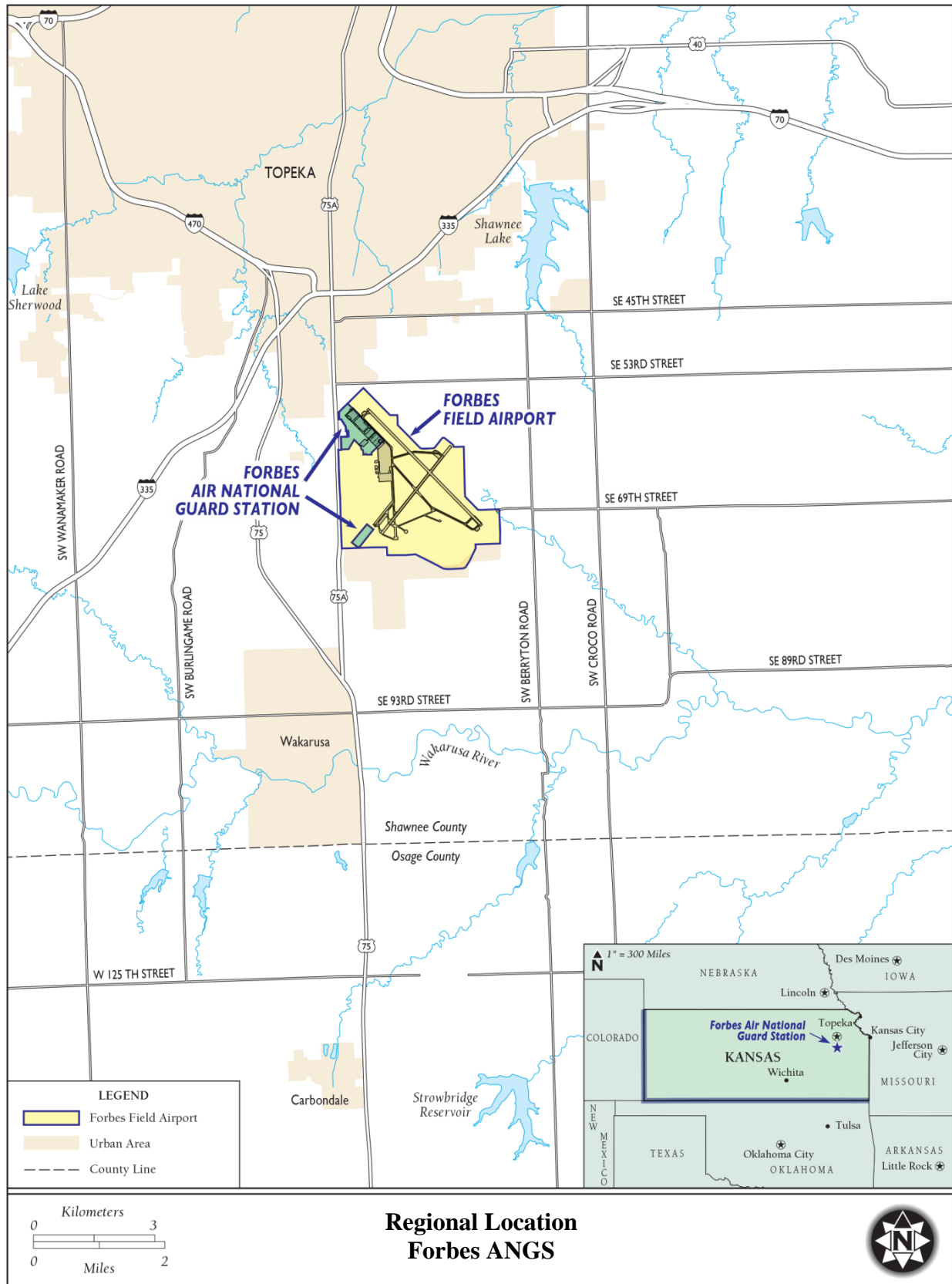
References:

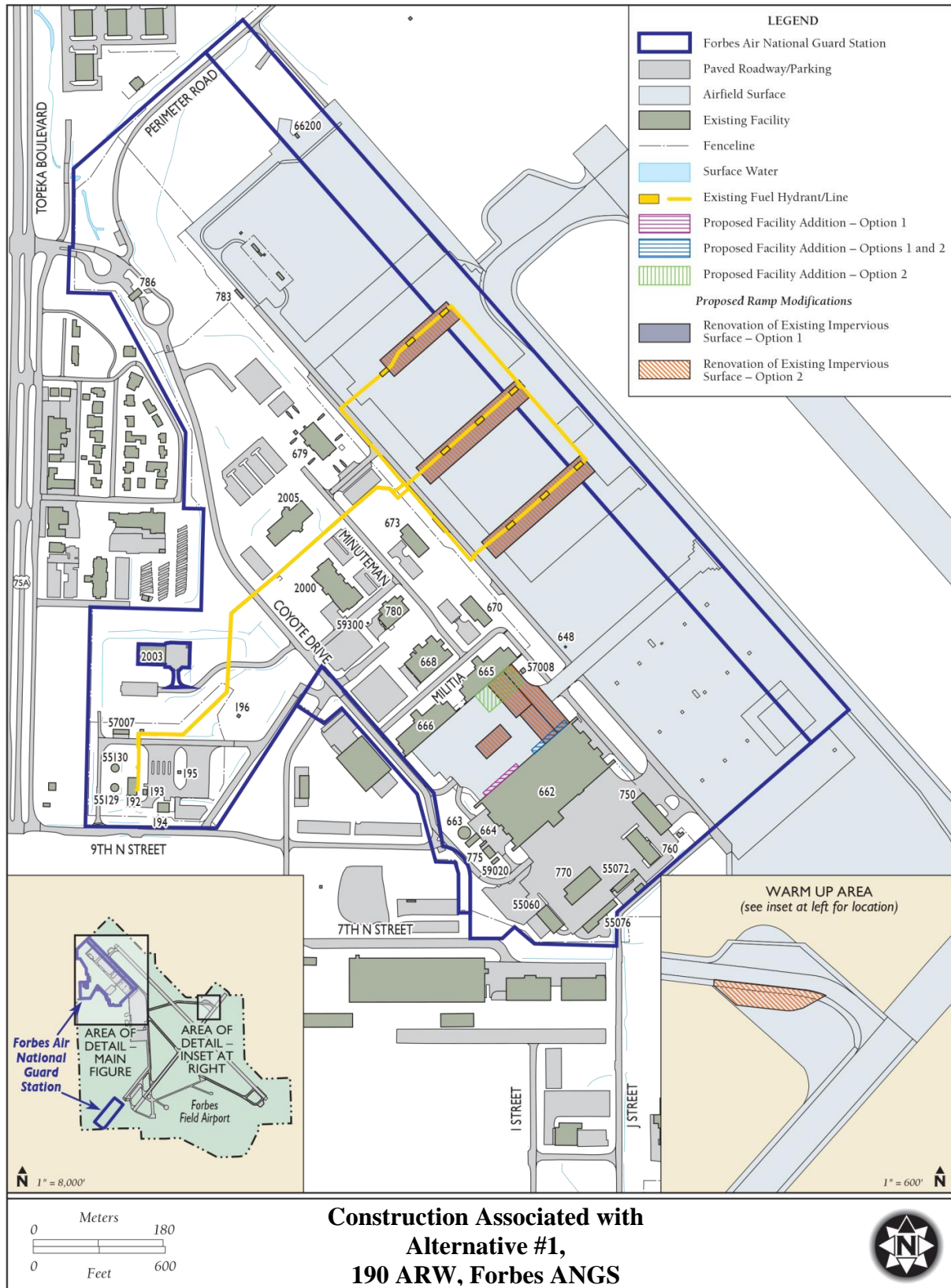
Kansas Air National Guard (KS ANG)

2008 *Cultural Resources Survey and Evaluation Report for Kansas Air National Guard Properties at Forbes Field, Topeka, Kansas*. Prepared for Kansas Air National Guard and Air National Guard, National Guard Bureau. June 2008.

Zollner, Patrick

2008 Letter to Majorie Nowick, Engineering-Environmental Management, Inc. from Patrick Zollner, Director, Cultural Resources Division, Deputy SHPO. Regarding Cultural Resources Survey of Forbes Field Air National Guard Base, Shawnee County. June 18, 2008.





**Forbes ANG S Federally-recognized Tribes:**

**Citizen Potawatomi Nation**

Kelli Mosteller, THPO  
1601 S. Gordon Cooper Drive  
Shawnee, OK 74801  
(405) 878-5830  
kelli.mosteller@potawatomi.org

John Barrett, Chairman  
1601 S. Gordon Cooper Drive  
Shawnee, OK 74801  
(405) 275-3121  
jbarrett@potawatomi.org

**Delaware Nation**

Tamara Francis, THPO  
31064 US Highway 281, Bldg. 100  
Anadarko, OK 73005

Kerry Holton, President  
P.O. Box 825  
Anadarko, OK 73005  
(405) 247-2448  
nhorn@delawarenation.com

**Kaw Nation**

Guy Munroe, Chairman  
Drawer 50  
Kaw City, OK 74641  
(580) 269-2552  
gmunroe@kawnation.com

**Osage Nation of Oklahoma**

Dr. Andrea A. Hunter, THPO  
627 Grandview  
Pawhuska, OK 74056  
Office - 918-287-5328

Mr. John D. Redeagle, Principal Chief  
P.O. Box 779  
627 Grandview  
Pawhuska, OK 74056  
918-287-5555  
jredeagle@osagetribe.org

**Prairie Band of Potawatomi Nation**

Steve Ortiz, Chairperson  
16281 Q Road  
Mayetta, KS 66509  
(785) 966-4007  
steveo@pbnation.org

**Absentee Shawnee Tribe of Oklahoma**

George Blanchard, Governor  
2025 S. Gordon Cooper Drive  
Shawnee, OK 74801  
(405) 275-4030 (405) 273-4534  
gblanchard@astribe.com

Henryetta Ellis, THPO  
2025 S. Gordon Cooper Drive  
Shawnee, OK 74801  
(405) 275-4030 ext. 199  
hellis@astribe.com

**Eastern Shawnee Tribe of Oklahoma**

Glenna Wallace, Chief  
12755 South 705 Rd.  
Wyandotte, OK 74370  
(918) 666-2435  
gjwallace@estoo.net

**Wichita and Affiliated Tribes**

Leslie Standing, President  
P.O. Box 729  
Anadarko, OK 73005  
(405) 247-2425 ext. 3  
leslie.standing@wichitatribe.com

6425 SW 6<sup>th</sup> Avenue  
Topeka, KS 66615



Kansas Historical Society

phone: 785-272-8681  
fax: 785-272-8682  
cultural\_resources@kshs.org

Sam Brownback, Governor  
Jennie Chinn, Executive Director

KSR&C # 13-09-125  
September 17, 2013

Ms. Anne Rowe  
National Guard Bureau  
Via Email

Re: KC-46A MOB 2 Forbes Field, Topeka – Shawnee County

We have reviewed the materials received September 17, 2013 regarding the above-referenced project in accordance with 36 CFR Part 800. In reviews of this nature, the SHPO determines whether a federally funded, licensed, or permitted project will adversely affect properties that are listed or determined eligible for listing in the National Register of Historic Places. The SHPO concurs with the proposed APE and that no historic properties will be affected by the project. As far as this office is concerned, the project may proceed.

Thank you for giving us the opportunity to comment on this proposal. Please refer to the Kansas State Review & Compliance number (KSR&C#) listed above on any future correspondence. Please submit any comments or questions regarding this review to Kim Gant at 785-272-8681, ext. 225 or kgant@kshs.org.

Sincerely,

Jennie Chinn  
State Historic Preservation Officer



Patrick Zollner  
Director, Cultural Resources Division  
Deputy State Historic Preservation Officer



**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

12 September 2013

Mr. Daniel Saunders  
New Jersey Department of Environmental Protection  
Historic Preservation Office  
PO Box 420  
Trenton, NJ 08625-420

Dear Mr. Saunders

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action. This correspondence is provided to initiate consultation with your office, pursuant to 36 Code of Federal Regulations (CFR) 800.3 for the Undertaking. Section 106 consultation for this project will be parallel to, but conducted separately from the EIS.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including JB MDL in New Jersey (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at JB MDL as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.



selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

At JB MDL, the KC-46A would replace the KC-135 currently based at the installation. The KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) as outlined in 36 CFR 800.3.

The National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this undertaking to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Specifically, these activities would include an addition to Hangar 3333, an addition to Hangar 3336, interior renovations to Hangar 3332, construction of a new 6,700 square foot simulator building west of Building 3390, modifications/additions to the existing aircraft ramp and taxiway, and the addition of eight new fuel hydrants and associated fuel lines on the aircraft parking apron.

The entire McGuire AFB and associated off-base facilities have been surveyed for archaeological resources (Headquarters Air Mobility Command [HQ AMC] 1995). The 1995 survey also included an architectural survey of all buildings and structures built prior to 1947, and the Semi-Automatic Ground Environmental (SAGE) complex built in 1956. As a result of this survey and follow up surveys conducted in 1996 (AMC 1996, Holmes 1996), 1997 (Holmes *et al.* 1997, McGuire AFB 2003), and 1998 (Holmes and Goar 1998), the SAGE complex, the Boeing Michigan Aeronautical Research Center (BOMARC) complex at Fort Dix, and three historic archaeological sites were recommended eligible for inclusion in the National Register of Historic Places (NRHP). No other buildings or sites were recommended eligible. The cultural resources recommended eligible for the NRIIP at McGuire AFB are all well outside the proposed APE for the undertaking. Additionally, according to the McGuire AFB Integrated Cultural Resources Management Plan (JB MDL 2013) the proposed APE occurs in an area of low archaeological sensitivity.

The NGB has identified no potential adverse effects as a result of this undertaking. We request your concurrence with the proposed APE, our identification of historic properties, and our assessment on the effects of this proposal on historic properties.

Page 3

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

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Sincerely



ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

Attachments: 1 – Vicinity map  
2 – Map of Area of Potential Effect  
3 – Draft Description of the Proposed Action and Alternatives  
4 – Federally Recognized Tribes associated with JB MDL

## References:

## Air Mobility Command (AMC)

1996 *Inventory of Cold War Properties*. December 1996.

## Headquarters Air Mobility Command (HQ AMC)

1995 *An Archaeological and Historical Resources Inventory of McGuire Air Force Base, New Jersey*. Prepared by Moeller, K.L., D.A. Walitschek, M. Greby, and J.F. Hoffecker of the Argonne National Laboratory for McGuire AFB.

## Holmes, Richard D.

1996 *Phase II Testing of Four Historic Sites McGuire Air Force Base Burlington County, New Jersey*. April 1996. Prepared by Mariah Associates, Inc., Albuquerque, New Mexico and Lyndhurst, New Jersey. Prepared for US Air Force/Air Mobility Command, Scott Air Force Base, Illinois.

Holmes, Richard D., Toni R. Goar, and Katherine J. Roxlau

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Holmes, Richard D. and Toni R. Goar

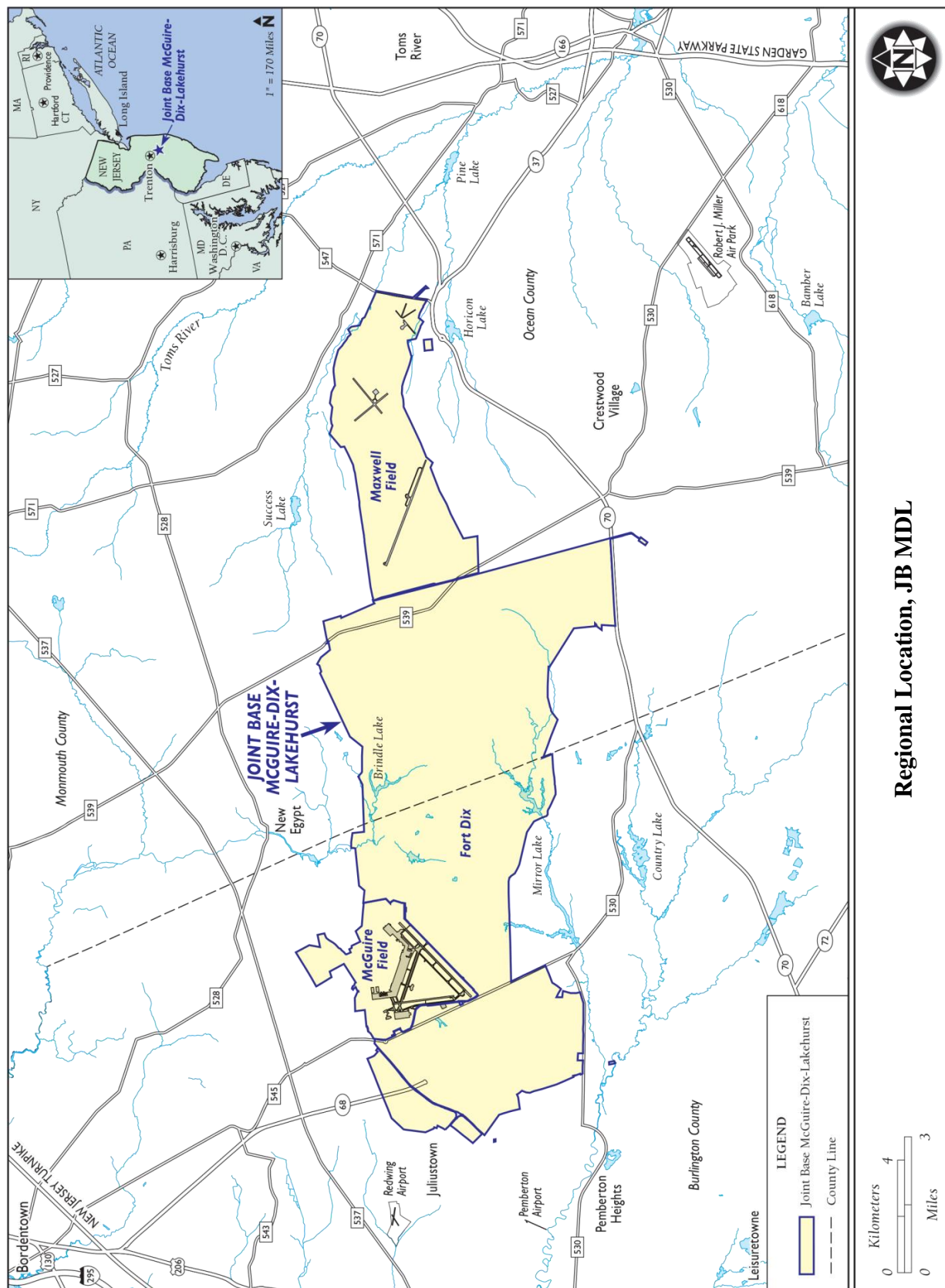
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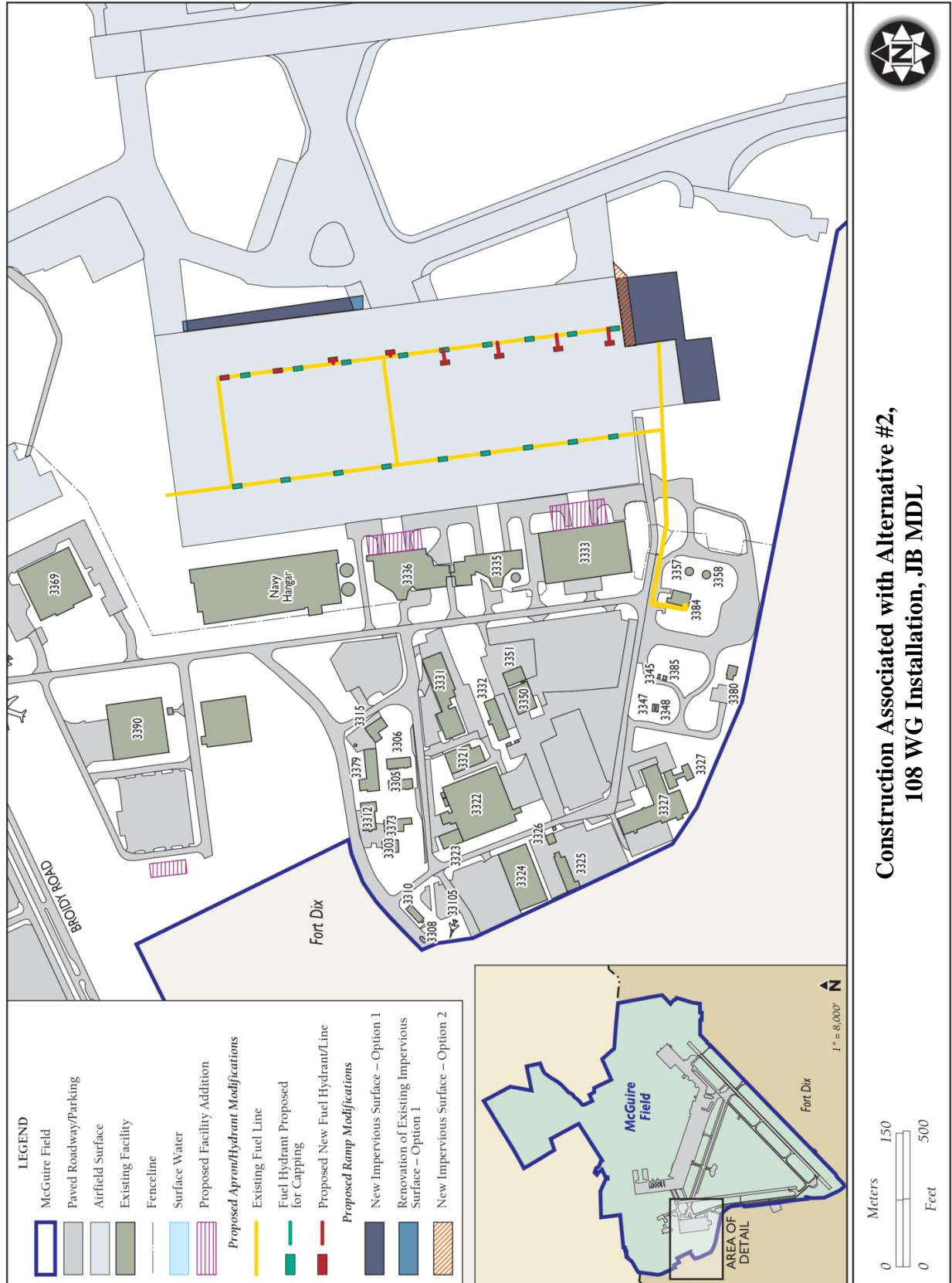
Joint Base McGuire-Dix-Lakehurst (JB MDL)

2013 *Draft Integrated Cultural Resources Management Plan*. 87 CES/CEAN, JB MDL, New Jersey. January 2013.

McGuire Air Force Base (AFB)

2003 *Final Integrated Cultural Resources Management Plan*. Prepared 2003. Updated July 2005.





**McGuire Federally-Recognized Tribes:**

**Delaware Nation**

Tamara Francis, THPO  
31064 US Highway 281, Bldg. 100  
Anadarko, OK 73005

Kerry Holton, President  
PO Box 825  
Anadarko, OK 73005  
(405) 247-2448  
nhorn@delawarenation.com

**Delaware Tribe of Indians**

Dr. Brice Obermeyer, THPO  
Department of Sociology and Anthropology, Emporia State University  
Roosevelt Hall, Rm. 212  
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Emporia, KS 66801

Paula Pechonick, Chief  
170 NE Barbara  
Bartlesville, OK 74006  
(918) 337-6593  
ppechonick@delawaretribe.org

Chester Brooks, Trust Board Chairman  
170 NE Barbara  
Bartlesville, OK 74006  
(918) 337-6590  
cbrooks@delawaretribe.org



**NATIONAL GUARD BUREAU**

3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

Mr. Daniel Saunders  
New Jersey Department of Environmental Protection  
Historic Preservation Office  
PO Box 420  
Trenton, NJ 08625-420

Dear Mr. Saunders

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action. This correspondence is provided to initiate consultation with your office, pursuant to 36 Code of Federal Regulations (CFR) 800.3 for the Undertaking. Section 106 consultation for this project will be parallel to, but conducted separately from the EIS.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including JB MDL in New Jersey (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at JB MDL as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

HPO- J2013-045

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12 September 2013

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HISTORIC PRESERVATION OFFICE



HPO Project # 13-1101-2  
HPO- J2013-045

Page 2

selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

At JB MDL, the KC-46A would replace the KC-135 currently based at the installation. The KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) as outlined in 36 CFR 800.3.

The National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this undertaking to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Specifically, these activities would include an addition to Hangar 3333, an addition to Hangar 3336, interior renovations to Hangar 3332, construction of a new 6,700 square foot simulator building west of Building 3390, modifications/additions to the existing aircraft ramp and taxiway, and the addition of eight new fuel hydrants and associated fuel lines on the aircraft parking apron.

The entire McGuire AFB and associated off-base facilities have been surveyed for archaeological resources (Headquarters Air Mobility Command [HQ AMC] 1995). The 1995 survey also included an architectural survey of all buildings and structures built prior to 1947, and the Semi-Automatic Ground Environmental (SAGE) complex built in 1956. As a result of this survey and follow up surveys conducted in 1996 (AMC 1996, Holmes 1996), 1997 (Holmes *et al.* 1997, McGuire AFB 2003), and 1998 (Holmes and Goar 1998), the SAGE complex, the Boeing Michigan Aeronautical Research Center (BOMARC) complex at Fort Dix, and three historic archaeological sites were recommended eligible for inclusion in the National Register of Historic Places (NRHP). No other buildings or sites were recommended eligible. The cultural resources recommended eligible for the NRHP at McGuire AFB are all well outside the proposed APE for the undertaking. Additionally, according to the McGuire AFB Integrated Cultural Resources Management Plan (JB MDL 2013) the proposed APE occurs in an area of low archaeological sensitivity.

The NGB has identified no potential adverse effects as a result of this undertaking. We request your concurrence with the proposed APE, our identification of historic properties, and our assessment on the effects of this proposal on historic properties.

HQO Project # 13-1101-2  
HQO-J2013-045

Page 3

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

The NGB is in the process of consulting with federally recognized American Indian Tribes concerning the Undertaking (Attachment 4). We are also contacting the public and relevant regional Archaeological Society offices both through the NEPA process and through Section 106 of the NHPA. All comments we receive, and any concerns expressed to the NGB, will be taken into consideration while planning for this undertaking. Please send your recommendations to the KC-46A MOB 2 Project Manager, Ms. Anne Rowe, at [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil). If you have any questions regarding this consultation, Ms. Rowe can also be reached at (240) 612-8636.

Sincerely



ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

Attachments: 1 – Vicinity map  
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HPO Project # 13-1101-2  
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Page 4

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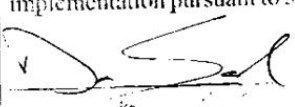
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2013 *Draft Integrated Cultural Resources Management Plan*. 87 CES/CEAN, JB MDL, New Jersey. January 2013.

McGuire Air Force Base (AFB)

2003 *Final Integrated Cultural Resources Management Plan*. Prepared 2003. Updated July 2005.

I concur with your finding that there are no historic properties affected within the project's area of potential effects. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.

 10/3/13  
Date

Daniel D. Saunders  
State Historic Preservation Officer



**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

12 September 2013

Nadine Peterson  
New Hampshire Division of Historical Resources  
19 Pilsbury St, 2<sup>nd</sup> Floor  
Concord, NH 03301

Dear Ms. Peterson

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action. This correspondence is provided to initiate consultation with your office, pursuant to 36 Code of Federal Regulations (CFR) 800.3 for the Undertaking. Section 106 consultation for this project will be parallel to, but conducted separately from the EIS.

The MOB 2 alternative locations for this beddown include:

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- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
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The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Pease ANGS in New Hampshire (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Pease ANGS as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace;

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Page 2

changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this action.

At Pease ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) as outlined in 36 CFR 800.3.

The National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this action to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Construction activities would include: renovations and additions to Hangars 251, 252, 253, and 254; construction and upgrade of the aircraft taxiway; repaving of the quad apron; and demolition of existing fuel hydrants and associated fuel lines and installation of new hydrants and lines on the aircraft parking apron.

The entire ANG at Pease has been surveyed for archaeological and architectural resources and no historic properties were identified (157<sup>th</sup> Air Refueling Wing [157 ARW] 2009). The NGB has identified no potential adverse effects to cultural resources as a result from this undertaking. We request your concurrence with the proposed APE, our identification of historic properties, and our assessment on the effects of this proposal on historic properties.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

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Sincerely

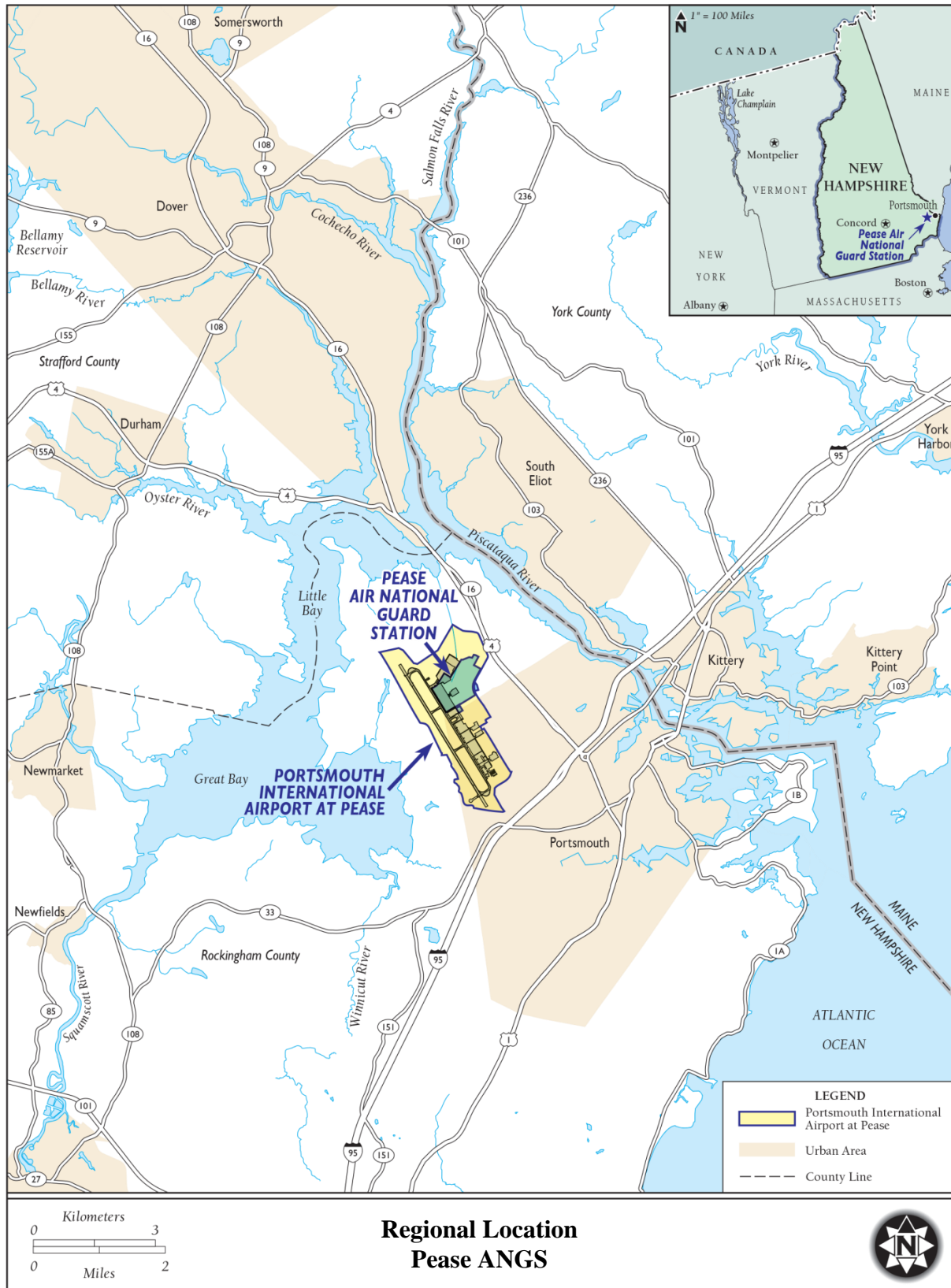


ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

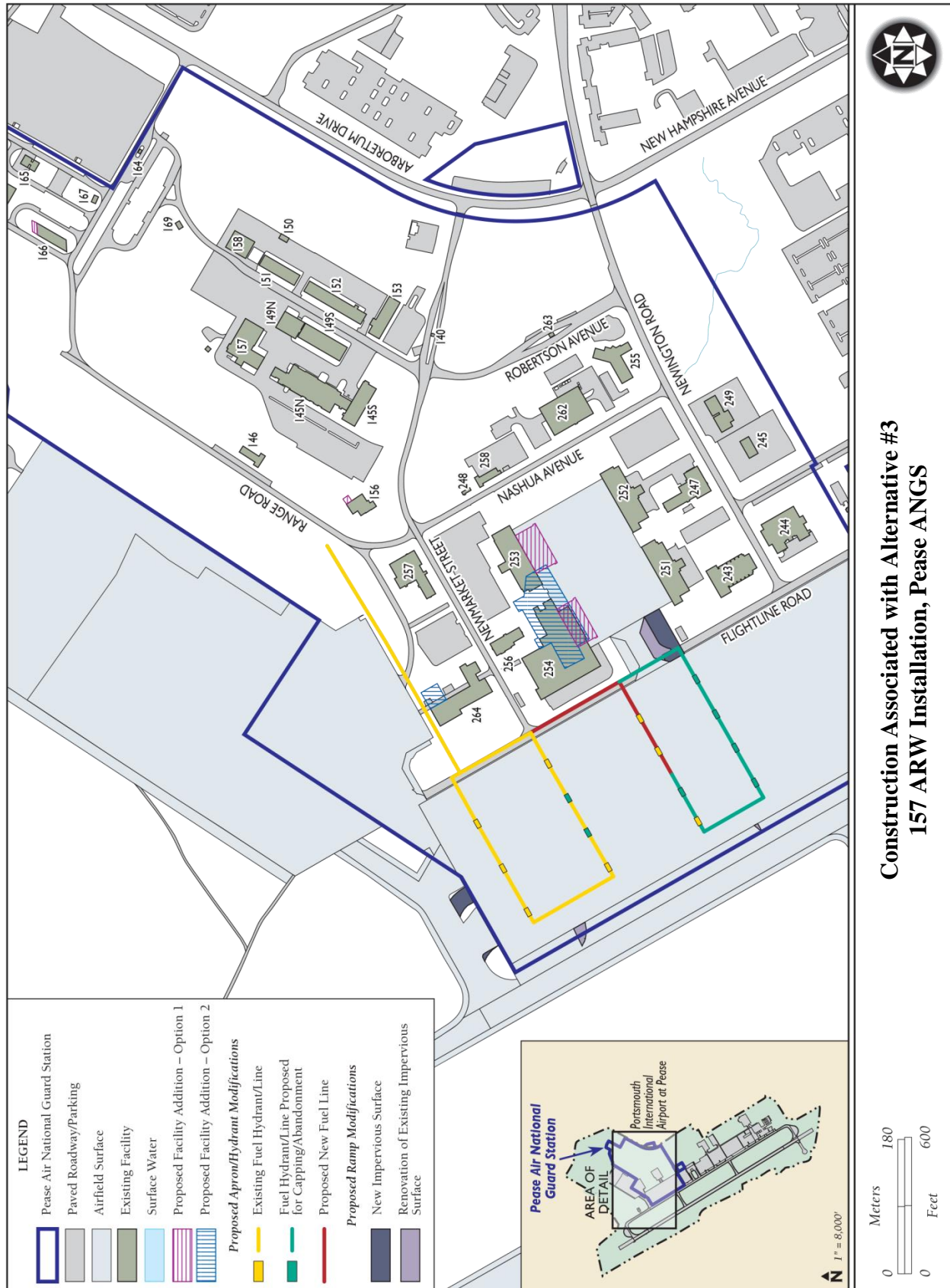
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4 – Federally Recognized Tribes associated with Pease ANG

Reference:

157<sup>th</sup> Air Refueling Wing (157 ARW)  
2009 *Cultural Resources Survey of the 157 Air Refueling Wing, New Hampshire Air National Guard, Pease International Tradeport, Town of Newington, Rockingham County, New Hampshire*. Prepared for New Hampshire Air National Guard and Air National Guard Readiness Center, National Guard Bureau. April 2009.







**Pease ANGS Federally-recognized Tribe:**

**Penobscot Indian Nation**

Kirk Francis, Chief  
12 Wabanaki Way  
Indian Island, ME 04668  
(207) 827-7776  
kirk.francis@Penobscotnation.org

Bonnie Newsom, THPO  
12 Wabanaki Way  
Indian Island, ME 04468  
(207) 817-7332  
Bonnie.Newsom@penobscotnation.org



NATIONAL GUARD BUREAU  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

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SEP 17 2013

Newington  
5126  
USANG

12 September 2013

NGB/A7AM

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New Hampshire Division of Historical Resources  
19 Pillsbury St, 2<sup>nd</sup> Floor  
Concord, NH 03301

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Page 2

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At Pease ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) as outlined in 36 CFR 800.3.

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Sincerely




ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

Attachments: 1 – Vicinity Map of Pease ANG  
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Conditions required for NEPA & Section 106 of the NHPA have been met.	
<input type="checkbox"/>	No Known Historic Resources
<input checked="" type="checkbox"/>	No Resources Present
<input type="checkbox"/>	No Adverse Effect
If plans change or resources are discovered in the course of this project, you must contact the Division of Historical Resources as required by federal law and regulation.	
 NH State Historic Preservation Officer	



**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

12 September 2013

Doug McLearen and Kira Heinrich  
Archaeology & Protection Division  
Pennsylvania Historical and Museum Commission  
Bureau for Historic Preservation  
Commonwealth Keystone Building  
400 North St  
Harrisburg, PA 17120

Dear Mr. McLearen and Ms. Heinrich

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

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At Pittsburgh ANG, the KC-46A would replace the KC-135 currently based at the installation. Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) as outlined in 36 CFR 800.3.

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The entire Pittsburgh ANG has been surveyed for archaeological and architectural resources and no historic properties were identified (Cardno TEC, Inc. 2011). Therefore, it is anticipated that no sites or buildings considered eligible for the NRHP would be affected by the proposed undertaking. We request your concurrence with the proposed APE, our identification of historic properties, and our assessment on the effects of this proposal on historic properties.

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Sincerely



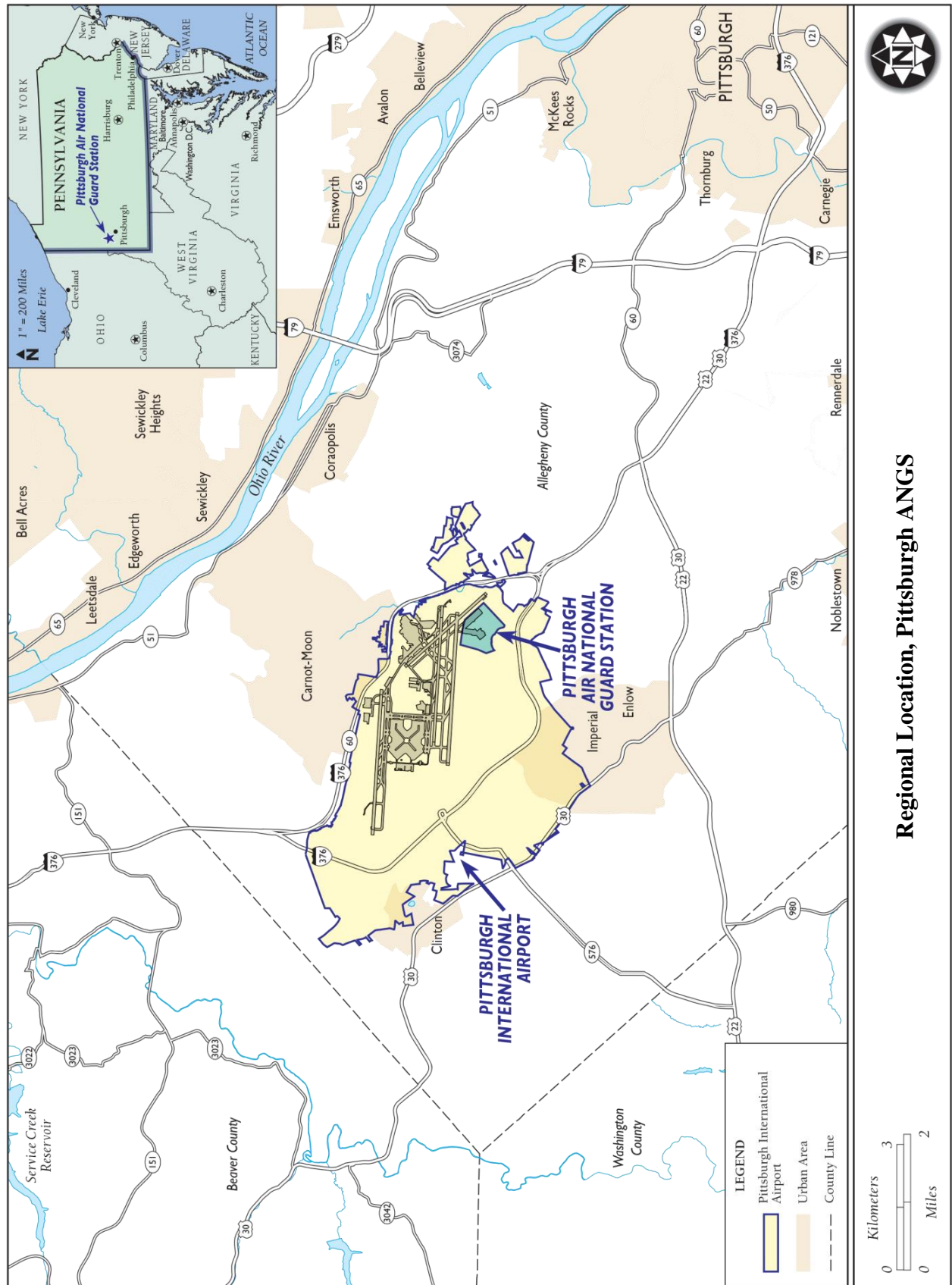
ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

Attachments: 1 – Vicinity Map of Pittsburgh ANG  
2 – Map of the Area of Potential Effect  
3 – Draft Description of the Proposed Action and Alternatives  
4 – Federally Recognized Tribes associated with Pittsburgh ANG

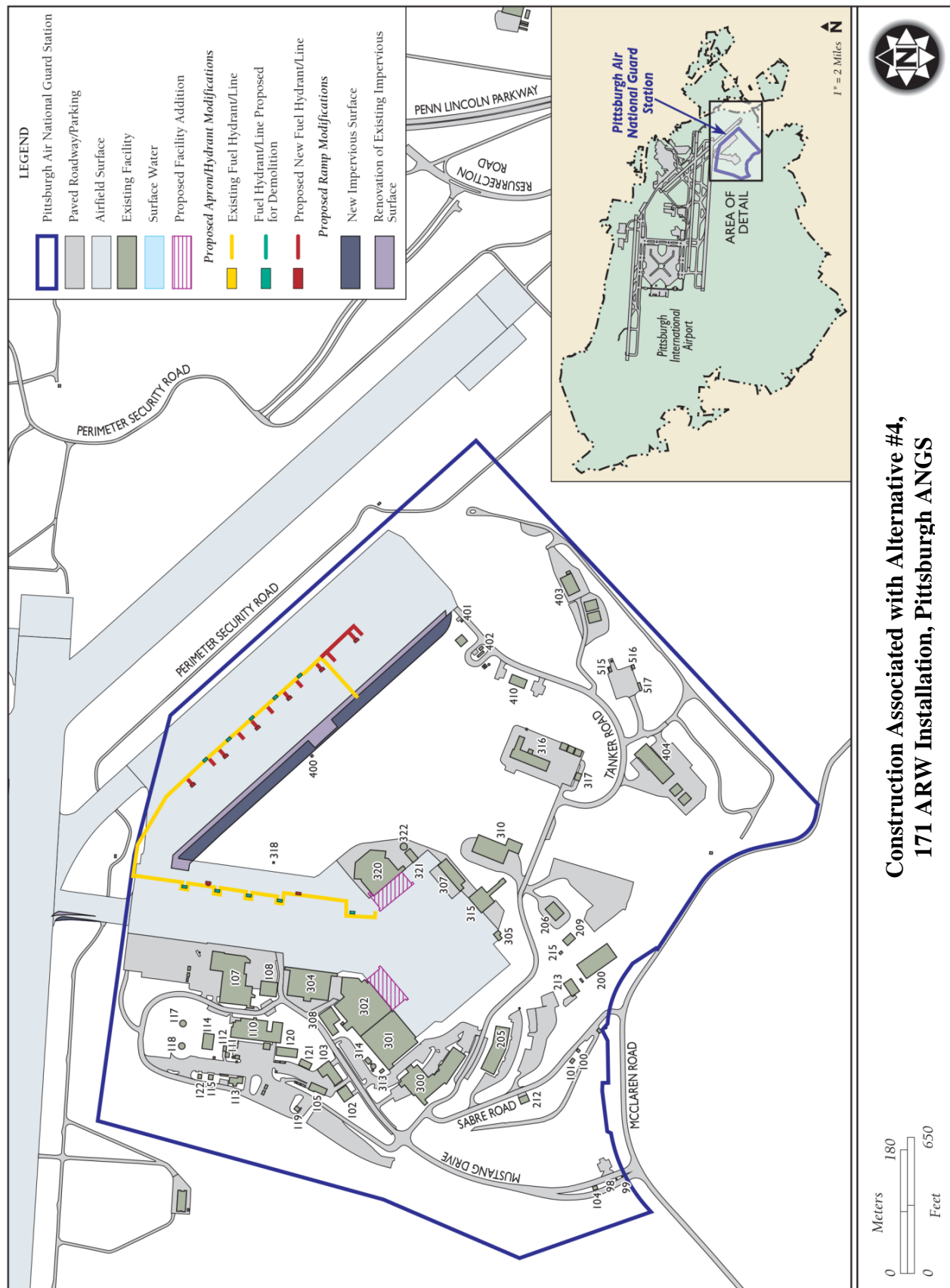
Reference:

Cardno TEC, Inc.

2011 *Cultural Resources Survey at the 171 Air Refueling Wing, Pittsburgh, Pennsylvania.*  
Prepared by TEC.



Regional Location, Pittsburgh ANG



**Construction Associated with Alternative #4,  
171 ARW Installation, Pittsburgh ANG**

**Pittsburgh ANGS Federally-recognized Tribes:**

**Cayuga Nation of New York**

Melinda Maybee, Nation Representative  
PO Box 803  
Seneca Falls, NY  
13148  
(315) 586-0750

**Onondaga Nation of New York**

Irving Powless, Chief  
RRT#1, PO Box 319-B  
Nedrow, NY 13120  
(315) 492-1922

**Tuscarora Nation of New York**

Leo Henry, Chief  
2006 Mt. Hope Rd.  
Lewiston, NY 14092  
(716) 297-1148

**Seneca Nation of Indians**

Robert Odawi Porter, President  
12837 Rte. 438  
Irving, NY 14081  
(716) 532-4900  
robert.porter@sni.org

Lana Watt, THPO  
90 Ohi Yoho Way  
Salamanca, NY 14779  
(716) 945-1790 ext. 3580  
Lana.watt5@sni.org

**Tonawanda Band of Seneca**

Roger Hill, Chief  
7027 Meadville Road  
Basom, NY 14013  
(716) 542-4244  
tonseneca@aol.com



**NATIONAL GUARD BUREAU**  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

12 September 2013

Lisa Adkins  
Ohio Historic Preservation Office  
800 E 17<sup>th</sup> Ave  
Columbus, OH 43211-2474

Dear Ms. Adkins

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action. This correspondence is provided to initiate consultation with your office, pursuant to 36 Code of Federal Regulations (CFR) 800.3 for the Undertaking. Section 106 consultation for this project will be parallel to, but conducted separately from the EIS.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including Rickenbacker ANGS in Ohio (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at Rickenbacker ANGS as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

At Rickenbacker ANG, the KC-46A would replace the KC-135 currently based at the installation (Attachment 1). Under this alternative, the KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this is correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) as outlined in 36 CFR 800.3.

The National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this undertaking to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Construction activities would include: additions and renovations to Hangar 885; an addition to Hangar 883; interior renovations to Hangar 888; modifications to the aircraft ramp and taxiway; and addition and demolition of fuel hydrants and associated fuel lines on the aircraft parking apron.

According to cultural resources surveys conducted between 2007 and 2008, there are no archaeological sites located within the proposed APE (National Guard Bureau [NGB] 2007, NGB 2008). These surveys covered the entire Rickenbacker ANG, including an inventory and evaluations of all buildings and structures and no significant archaeological resources were encountered. Two buildings (Hangars 885 and 888) were recommended eligible for listing on the National Register of Historic Places. Hangars 885 and 888 have been determined eligible to the NRHP under Criteria A and C (Snyder 2007). Specific changes to Hangar 885 proposed for this undertaking include a 4,000 square foot addition to provide adequate space for the larger KC-46A aircraft. Specific changes to Hangar 888 proposed for this undertaking include interior modifications only with no changes to the exterior.

The NGB has identified that a potential adverse effect to Hangar 885 may result from this undertaking. For Hangar 888, the NGB has identified no potential adverse effect from this undertaking as the renovations are interior only; however, we first request your concurrence with the proposed APE and with our identification of historic properties.

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

Page 3

The NGB is in the process of consulting with federally-recognized American Indian Tribes concerning the Undertaking (Attachment 4). We are also contacting the public and relevant regional Archaeological Society offices both through the NEPA process and through Section 106 of the NHPA. All comments we receive, and any concerns expressed to the NGB, will be taken into consideration while planning for this undertaking. Please send your recommendations to the KC-46A MOB 2 Project Manager, Ms. Anne Rowe, at [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil). If you have any questions regarding this consultation, Ms. Rowe can also be reached at (240) 612-8636.

Sincerely



ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

Attachments: 1 – Vicinity Map of Rickenbacker ANG  
2 – Map of Area of Potential Effect  
3 – Draft Description of the Proposed Action and Alternatives  
4 – Federally Recognized Tribes Associated with Rickenbacker ANG

## References:

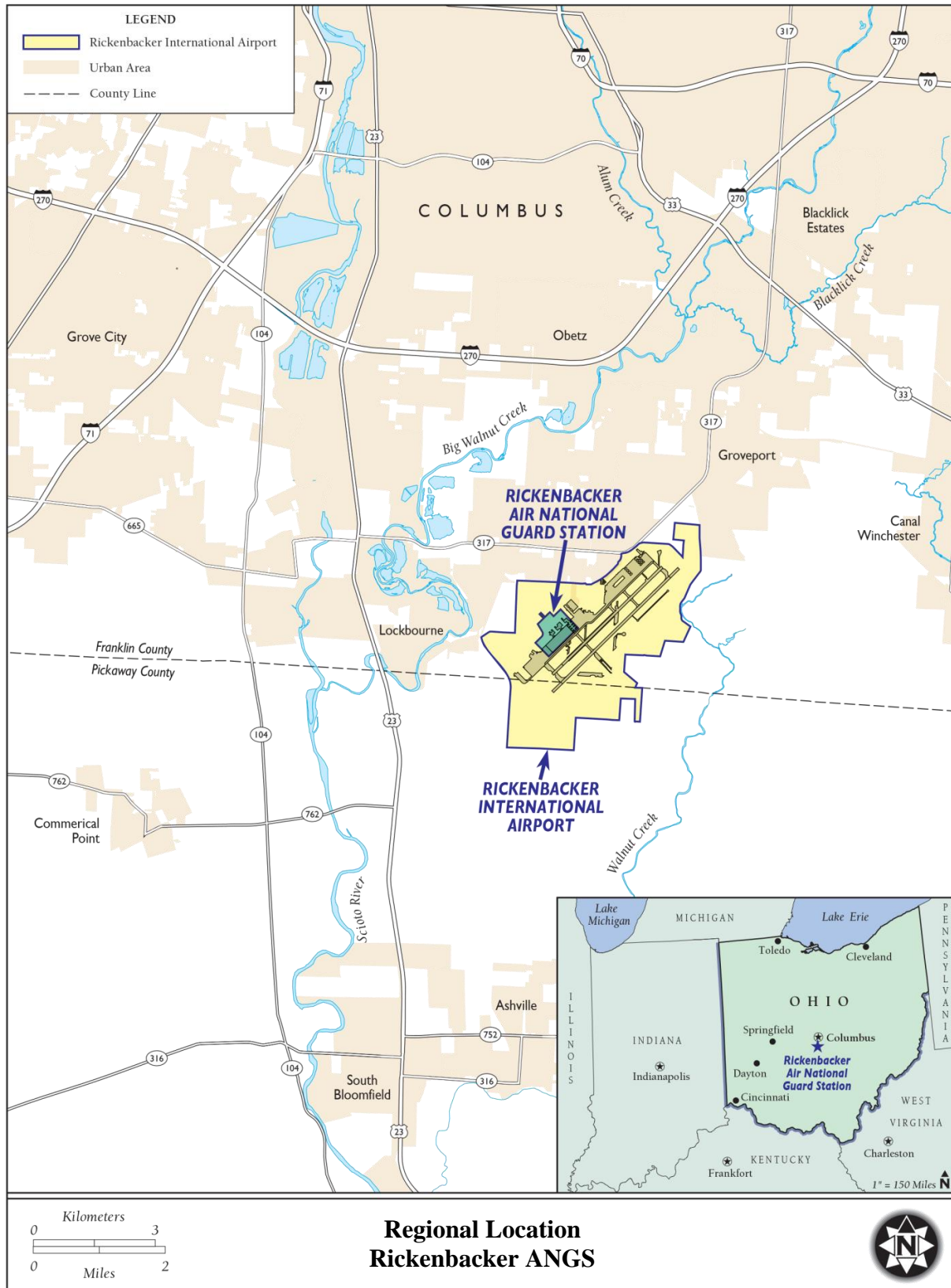
## National Guard Bureau (NGB)

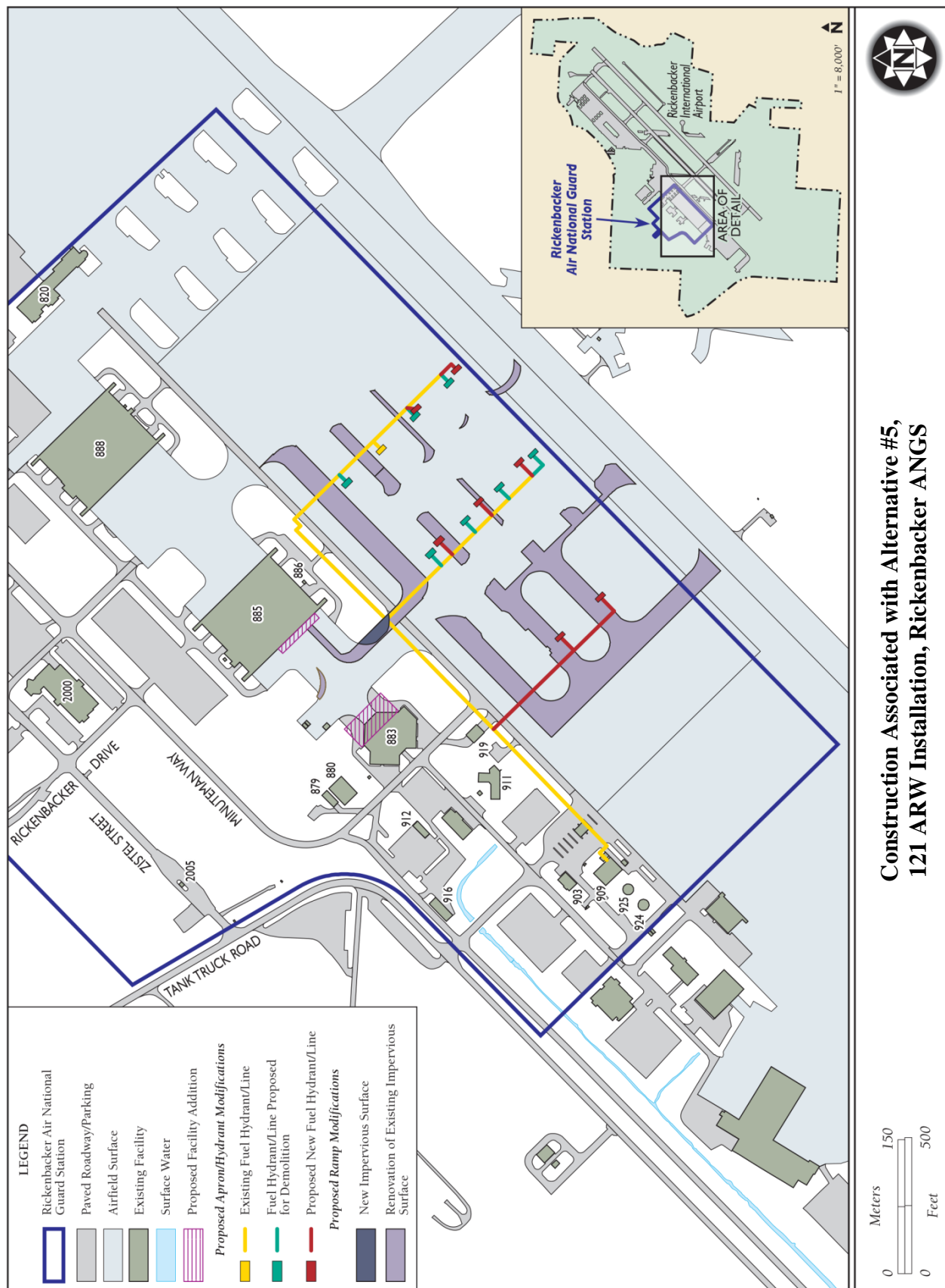
- 2007 *Cultural Resources Survey of the 121<sup>st</sup> Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio*. Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. December 2007.
- 2008 *Cultural Resources Survey of the 121<sup>st</sup> Air Refueling Wing, Ohio Air National Guard, Rickenbacker International Airport, Columbus, Franklin County, Ohio*. Prepared for the National Guard Bureau, Air National Guard Readiness Center NGB/A7CVN, Andrews Air Force Base, Maryland. January 2008.

## Snyder, David

- 2007 Letter to Matt Nowakowski, National Guard Bureau from David Snyder, Archaeology Review Manager, Resource Protection and Review, Ohio Historic Preservation Office regarding: *121 ARW Ohio ANG, Rickenbacker IAP, Draft Final Cultural Resources Survey, Hamilton Township, Franklin County, Ohio*. August 23, 2007.







**Rickenbacker Federally-recognized Tribes**

**Citizen Potawatomi Nation**

Kelli Mosteller, THPO  
1601 S. Gordon Cooper Drive  
Shawnee, OK 74801  
Ph (405) 878-5830  
kelli.mosteller@potawatomi.org

John Barrett, Chairman  
1601 S. Gordon Cooper Drive  
Shawnee, OK 74801  
Ph (405) 275-3121  
jbarrett@potawatomi.org

**Delaware Nation**

Tamara Francis, THPO  
31064 US Highway 281, Bldg. 100  
Anadarko, OK 73005

Kerry Holton, President  
P.O. Box 825  
Anadarko, OK 73005  
Ph (405) 247-2448  
nhorn@delawarenation.com

**Prairie Band of Potawatomi Nation**

Steve Ortiz, Chairperson  
16281 Q Road  
Mayetta, KS 66509  
Ph (785) 966-4007  
steveo@pbpnation.org

**Eastern Shawnee Tribe of Oklahoma**

Glenna Wallace, Chief  
12755 South 705 Rd.  
Wyandotte, OK 74370  
Ph (918) 666-2435  
gjwallace@estoo.net

**Forest County Potawatomi Community**

Harold Frank, Chairman  
PO Box 340  
Crandon, WI 54520  
Ph (715) 478-2903  
jessica.gouge2@fcpotawatomi-nsn.gov

**Hannahville Indian Community**

Kenneth Meshigaud, Chairperson  
N14911 Hannahville B1 Rd.  
Wilson, MI 49896-9728  
Ph (906) 723-2600  
Fax (906) 466-2933  
tyderyien@hannahville.org

**Miami Tribe of Oklahoma**

George Strack, THPO  
PO Box 1326  
Miami, OK 74355  
(918) 542-1445

Thomas Gamble, Chairperson  
PO Box 1326  
Miami, OK 74355-1326  
(918) 542-1445

**Ottawa Tribe of Oklahoma**

Ethel E. aa Cooka, Chief  
PO Box 110  
Miami, OK 74355  
Ph (918) 540-1536  
Fax (918) 542-3214  
Dixon\_rhonda@sbcglobal.net

**Peoria Tribe of Indians of Oklahoma**

John P. Froman, Chief  
PO Box 1527  
Miami, OK 74355  
Ph (918) 540-2535, ext. 12  
Fax (918) 540-2538  
jfroman@peoriatribes.com

**Pokagon Band of Potawatomi Indians**

Matthew J. Wesaw, Chairman  
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Dowagiac, MI 49047  
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Fax (269) 782-9625  
Matthew.wesaw@pokagonband-nsn.gov

**Mike Zimmerman, THPO**

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Dowagiac, MI 49047  
Ph (269) 782-9602  
Fax (269) 782-1817  
Michael.zimmerman@pokagonband-nsn.gov

**Shawnee Tribe**

Jody Hayes, Tribe Administrator  
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Ph (918) 542-2441  
shawneetribes@shawnee-tribe.com

Ron Sparkman, Chairperson  
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Miami, OK 74355  
Ph (918) 542-2441  
Fax (918) 542-2922  
shawneetribes@shawnee-tribe.com

**Turtle Mountain Band of Chippewa  
Indians of North Dakota**

Kade Ferris, THPO  
PO Box 900  
Belcourt, ND 58316  
Ph (701) 477-2604  
Fax (701) 477-3593  
kade@tribalresources.com

Merle St. Claire, Chairman  
PO Box 900  
Belcourt, ND 58316  
Ph (701) 477-2600  
Fax (701) 477-6836  
Merle.stclaire@yahoo.com

**Wyandotte Nation**

Billy Friend, Chief  
64700 East Highway 60  
Wyandotte, OK 74370  
Ph (918) 678-2297  
Fax (918) 678-2944  
bfriend@wyandotte-nation.org

Sherri Clemons, THPO  
64700 East Highway 60  
Wyandotte, OK 74370  
Ph (918) 678-2297, ext. 244  
Fax (918) 678-2944  
sclemons@wyandotte-nation.org

**PROGRAMMATIC AGREEMENT  
BETWEEN  
NATIONAL GUARD BUREAU,  
THE OHIO STATE HISTORIC PRESERVATION OFFICE,  
AND RICKENBACKER AIR NATIONAL GUARD STATION,  
REGARDING CONSTRUCTION PROJECTS ASSOCIATED WITH THE PROPOSED KC-46A BEDDOWN,  
RICKENBACKER AIR NATIONAL GUARD STATION, FRANKLIN COUNTY, OHIO**

**WHEREAS**, the National Guard Bureau (NGB), as a Federal Agency, is required to comply with Section 106 of the National Historic Preservation Act (16 U.S.C. § 470f) (NHPA), as amended and its implementing regulations (36 CFR Part 800) *Protection of Historic Properties*; and NGB provides federal funding and guidance to Rickenbacker Air National Guard Station in fulfillment of its Federal mission; and

**WHEREAS**, the NGB proposes to beddown one squadron of 12 KC-46A aircraft at one of five alternative locations - Forbes Air National Guard Station (ANGS), Kansas; Joint Base McGuire-Dix-Lakehurst, New Jersey; Pease ANGS, New Hampshire; Pittsburgh ANGS, Pennsylvania; or Rickenbacker ANGS, Ohio - which will require an active duty associate unit to be integrated with Air National Guard (ANG) personnel and equipment, enabling joint training and execution of missions using ANG-assigned aircraft; and

**WHEREAS**, the NGB will implement construction projects associated with the aircraft beddown at the selected installation (Undertaking); at Rickenbacker Air National Guard Station (ANGS), buildings 885 and 888, facilities that have been determined to be eligible for listing in the National Register of Historic Places, have been identified in the Area of Potential Effects (APE) and may be adversely affected by required alterations to support the KC-46A beddown; and

**WHEREAS**, due to the timing of the selection process for the KC-46A beddown location, and pursuant to Air Force Instruction 32-7065, Chapter 1.3.6, final design of the construction projects cannot be undertaken prior to the completion of the Section 106 process; and

**WHEREAS**, pursuant to 36 CFR Part 800, the NGB has consulted with the Ohio State Historic Preservation Office (Ohio SHPO) regarding the Undertaking and its possible effects on historic properties; and

**WHEREAS**, the NGB has consulted with Rickenbacker ANGS regarding the Undertaking and its possible effects on historic properties and has invited it to sign this agreement as an invited signatory; and

**WHEREAS**, the NGB has made a reasonable and good faith effort to identify Indian Tribes entitled to be consulting parties, and those invited by the NGB to participate in the Section 106 process have chosen not to do so; and

**WHEREAS**, in accordance with 36 C.F.R. § 800.6(a)(1), the NGB has notified the Advisory Council on Historic Preservation (ACHP) of its intent to develop this agreement, and the ACHP has chosen not to participate in consultation pursuant to 36 C.F.R. § 800.6(a)(1)(iii); and

**NOW, THEREFORE**, NGB, the Ohio SHPO, and Rickenbacker ANGTS agree that this agreement shall be implemented in accordance with the following stipulations in order to take into account the effects of undertakings on historic properties.

#### **STIPULATIONS**

##### **I. CONSULTATION**

- A. If Rickenbacker ANGTS is selected to be the KC-46A MOB2 base, then the NGB shall consult with the Ohio SHPO to evaluate the effects of the Undertaking on historic properties.
- B. Consultation shall begin upon selection of Rickenbacker ANGTS, if it is to occur.
- C. If Rickenbacker ANGTS is selected, NGB staff meeting Professional Qualification Standards (48 FR 44716) in a relevant discipline shall analyze project designs for construction projects associated with the Undertaking and apply the criteria of adverse effect [36 CFR Section 800.5(a)(1)]. The NGB will then submit its finding regarding the effects of the Undertaking on historic properties to the Ohio SHPO, providing the information and analysis required by 36 CFR Section 800.11, and request its concurrence in accordance with 36 CFR Sections 800.5-6.
  - 1. If the NGB and the Ohio SHPO concur that the Undertaking will have no adverse effect on historic properties, the Section 106 process will have been completed.
  - 2. If the NGB and the Ohio SHPO concur that the Undertaking will adversely affect historic properties, the NGB, the Ohio SHPO, and Rickenbacker ANGTS shall continue consultation to consider alternatives that would avoid, minimize, or mitigate adverse effects in accordance with 36 CFR Section 800.6(a).
- D. No construction projects related to this Undertaking shall take place before either the NGB and the Ohio SHPO concur that the Undertaking will have no adverse effect on historic properties or adverse effects resulting from the Undertaking have been mitigated through the execution of a Memorandum of Agreement in accordance with 36 CFR Section 800.6(b).

##### **II. DISPUTE RESOLUTION**

Should any signatory to this agreement object at any time to any actions proposed or the manner in which the terms of this agreement are implemented, the NGB shall consult with the objecting

party to resolve the objection. If the NGB determines that such objection cannot be resolved, the NGB shall:

- A. Forward all documentation relevant to the dispute, including the NGB's proposed resolution, to the ACHP. The ACHP shall provide the NGB with its advice on the resolution of the objection within thirty (30) days of receiving adequate documentation. Prior to reaching a final decision on the dispute, the NGB shall prepare a written response that takes into account any timely advice or comments regarding the dispute from the ACHP, the Ohio SHPO, and Rickenbacker ANG and provide them with a copy of this written response. The NGB will then proceed according to its final decision.
- B. If the ACHP does not provide its advice regarding the dispute within the thirty (30) day time period, the NGB may make a final decision on the dispute and proceed accordingly. Prior to reaching such a final decision, the NGB shall prepare a written response that takes into account any timely comments regarding the dispute from the Ohio SHPO and Rickenbacker ANG to the agreement, and provide it and the ACHP with a copy of such written response.
- C. The NGB's responsibility to carry out all other actions subject to the terms of this agreement that are not the subject of the dispute remain unchanged.

### **III. DURATION**

This agreement will continue in full force until December 31, 2019, and may be reviewed for modifications, termination, or renewal before this date has passed.

### **IV. AMENDMENT**

At the request of the NGB, the Ohio SHPO, or Rickenbacker ANG, this agreement may be reviewed for modifications at any time. This agreement may be amended when such an amendment is agreed to in writing by all signatories. The amendment will be effective on the date the NGB files a copy signed by all of the signatories with the ACHP.

### **V. TERMINATION**

If any signatory to this agreement determines that its terms will not or cannot be carried out, that party shall immediately consult with the other parties to attempt to develop an amendment per Stipulation IV, above. If within thirty (30) days an amendment cannot be reached, any signatory may terminate the agreement upon written notification to the other signatories.

**EXECUTION** of this agreement by the NGB, the Ohio SHPO, and Rickenbacker ANG and implementation of its terms evidence that the NGB has taken into account the effects of this proposed Undertaking on historic properties and has afforded the ACHP an opportunity to comment





**RICKENBACKER ANG'S MEMORANDUM OF AGREEMENT  
SIGNATURE PAGE**

**FOR RICKENBACKER AIR NATIONAL GUARD STATION**


Digitally signed by  
JONES.JAMES.V.1076022182  
Date: 2014.05.06 15:06:18 -04'00'

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JAMES JONES, COLONEL, OHANG  
Wing Commander, 121 Air Refueling Wing

**RICKENBACKER ANG'S MEMORANDUM OF AGREEMENT  
SIGNATURE PAGE**

**FOR THE OHIO STATE HISTORIC PRESERVATION OFFICE**

 Date 5.7.14

**MARK EPSTEIN**

Deputy State Historic Preservation Officer for Resource Protection  
and Review Ohio State Historic Preservation Office

**Appendix B4**

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***Relevant Historic Correspondence***



**MEMORANDUM OF AGREEMENT**  
**Among the**  
**Air National Guard Readiness Center,**  
**190th Air Refueling Wing, Kansas Air National Guard**  
**and**  
**Kansas State Historic Preservation Officer**  
**Pursuant to 36 CFR 800.6(c)**  
**Regarding modifications and changes to**  
**Building 679 Squad Operations**  
**Forbes Field Air National Guard Base, Topeka, Kansas**

**WHEREAS,** The Kansas Air National Guard (KS ANG) is a component of the Air National Guard Directorate within the National Guard Bureau, and Sec. 106 of the National Historic Preservation Act (16 USC Sec. 470F) (NHPA) and associated Federal regulations (36 CFR Part 800) apply to Air National Guard “undertakings” as defined in the NHPA and 36 CFR Sec. 800.16(y); and

**WHEREAS,** The Air National Guard Readiness Center (ANGRC) serves as Headquarters for the Federal entity initiating consultation under Sec. 106 for this proposed action; and

**WHEREAS,** Building 679, located at Forbes Field Air National Guard Base, Topeka, KS, was constructed in 1958 during the Cold War for the Strategic Air Command as an Alert Mission Readiness Crew Building (31,044 square feet) is now used as an Operations Building; and

**WHEREAS,** The Area of Potential Effect (APE) is the current Building 679 footprint; as shown in attachment 3; and

**WHEREAS,** the 190th Air Refueling Wing (ARW) is stationed at Forbes Field Air National Guard Base and has sought to contact the public regarding this undertaking through its retirees’ organization, the “Past & Active Kansas Coyotes” and having received no public comment; and

**WHEREAS,** The 190th ARW complies with NHPA requirements pursuant to Air Force Instruction 32-7065, *Cultural Resources Management*; and

**WHEREAS,** The 190th ARW has determined that there are no Federally-recognized Indian Tribes that attach traditional religious and cultural importance to the structure and landscape within the APE; and

**WHEREAS,** The 190th ARW intends to modify and alter Building 679, an undertaking that will constitute an adverse effect on the building, which the KS ANG has determined eligible for inclusion in the National Register of Historical

Places under criteria A and C and the 190th ARW has consulted with the Kansas State Historic Preservation Officer (KS SHPO) pursuant to 36 CFR Part 800, and

**WHEREAS**, In accordance with 36 CFR Sec. 800.6(a)(1), the 190th ARW notified the Advisory Council on Historic Preservation (Council) of this consultation on October 8, 2008 and on October 24, 2008, the Council responded in writing that it did not wish to participate in consultation pursuant to 36 CFR Sec. 800.6(a)(1)(iii).

**NOW, THEREFORE**, the ANGRC, KS SHPO and the 190th ARW agree that the undertaking shall be implemented in accordance with the following stipulations.

#### STIPULATIONS

The 190th ARW shall:

**I. INTERPRETATION** - Create a display case to house the original Building 679 architectural documents and photographs, as well as a history of the building developed from the *"Cultural Resources Survey and Evaluation Report for Kansas Air National Guard Properties at Forbes Field, Topeka, Kansas"* (ANG 2008). This display will be located in the building's entry corridor to facilitate access. The 190th ARW shall afford the KS SHPO an opportunity to comment on the conceptual drawings for the display prior to design completion. The KS SHPO will have 30 days from date of receipt to comment on the display design.

**II. UNANTICIPATED DISCOVERIES** - If historic properties are discovered or unanticipated effects on historic properties are found during the implementation of this undertaking, the 190th ARW shall consult with the KS SHPO pursuant to 36 CFR §800.4 to determine appropriate measures to treat the discovery.

#### ADMINISTRATIVE STIPULATIONS

**I.** The State of Kansas and the 190th ARW do not waive their sovereign immunity by entering into this Memorandum of Agreement (MOA), and each fully retains all immunities and defenses with respect to any action based on, or occurring as a result of, this MOA;

**II.** This MOA represents the entire and integrated agreement between the parties and supersedes all prior negotiations, representations and agreements, whether written or oral, regarding Section 106 review of the effects of the undertaking on Building 679 and the integrity of setting.

MEMORANDUM OF AGREEMENT  
between FORBES FIELD AIR NATIONAL GUARD BASE and  
the KANSAS STATE HISTORIC PRESERVATION OFFICER  
regarding modifications and changes to BUILDING 679  
2 of 5



**III. DISPUTE RESOLUTION** – Should the KS SHPO object within thirty (30) days to any actions proposed or carried out pursuant to this agreement, the 190th ARW shall consult with the KS SHPO to resolve the objection.

A. At any time during the implementation of the measures stipulated in this agreement, should an objection to any such measure or its manner of implementation be raised by a member of the public or one of the parties to this agreement, the 190th ARW shall take the objection into account and consult as needed with the objecting party and if necessary, the KS SHPO.

B. If a dispute as described in III. A. above cannot be resolved, then the 190th ARW will notify the ANGRC and the Council, to resolve the objection. The 190th ARW and ANGRC shall request further comments from the Council pursuant to 36 CFR 800.6(b). Any Council comment provided in response to such a request shall be taken into account by the 190th ARW in accordance with 36 CFR Part 800 with reference only to the subject of the dispute. The 190th ARW's responsibility to carry out all actions under this agreement that are not the subject of the dispute will remain unchanged.

C. The 190th ARW shall consider non-signatory objections to the manner in which the terms of the agreement are implemented. If the objection cannot be resolved to the satisfaction of the 190th ARW and the objecting party, the 190th ARW shall request the signatories to provide their opinion on the matter. Prior to making a final decision on the matter, the 190th ARW shall take into account all the signatory opinions received within 15 days of the request.

C. Nothing in this Section shall be construed or interpreted as a waiver of any judicial remedy that would be available to any party to this MOA.

**IV. AMENDMENTS** - Any signatory to this MOA may request that the other signatories consider amending it if circumstances change over time and warrant revision of the stipulations. Amendments will be executed in the same manner as the original MOA and shall be governed by 36 CFR 800.6.

**V. EXECUTION** - Execution of this MOA by the 190th ARW and the KS SHPO through the submission of documentation and filing of a final copy of this MOA with the Council pursuant to 36 CFR Sec. 800.6(b)(1)(iv) and implementation of its terms is evidence that the Council has taken into account the effects of this undertaking on historic properties and has been afforded an opportunity to comment.

**VI. ANTI-DEFICIENCY ACT COMPLIANCE**- All requirements set forth in this MOA requiring expenditure of Federal funds are expressly subject to the availability of appropriations and the requirements of the Anti-Deficiency Act (31

MEMORANDUM OF AGREEMENT  
between FORBES FIELD AIR NATIONAL GUARD BASE and  
the KANSAS STATE HISTORIC PRESERVATION OFFICER  
regarding modifications and changes to BUILDING 679  
3 of 5

USC Section 1341) No obligation undertaken by the 190th ARW under the terms of this MOA shall require or be interpreted to require a commitment to expend funds not appropriated for that purpose.

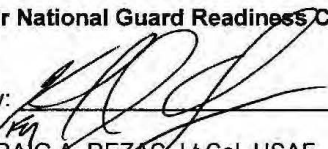
**VII. TERMINATION** - A. Any party to this agreement may terminate it by providing thirty (30) days written notice to the other parties, provided that the parties consult during the period prior to termination to seek agreement on amendments or other actions that will avoid termination.

B. In the event of termination, the 190th ARW, in consultation with the KS SHPO, will determine how to carry out the 190th ARW's responsibilities under Section 106 in a manner consistent with applicable provisions of 36 CFR Part 800.

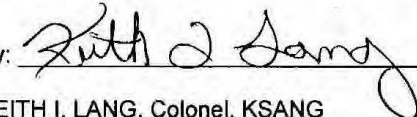
**VIII. SUNSET TERMS** - This MOA will remain in effect for ten (10) years from the date of execution.

#### SIGNATORIES

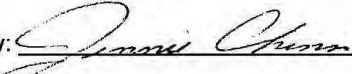
##### Air National Guard Readiness Center

By:  Date: 11 Aug 09  
CRAIG A. REZAC, Lt Col, USAF  
Deputy Chief, Asset Management Division

##### Forbes Field Air National Guard Base

By:  Date: 28 Aug 09  
KEITH I. LANG, Colonel, KSANG  
Commander

##### Kansas State Historic Preservation Officer

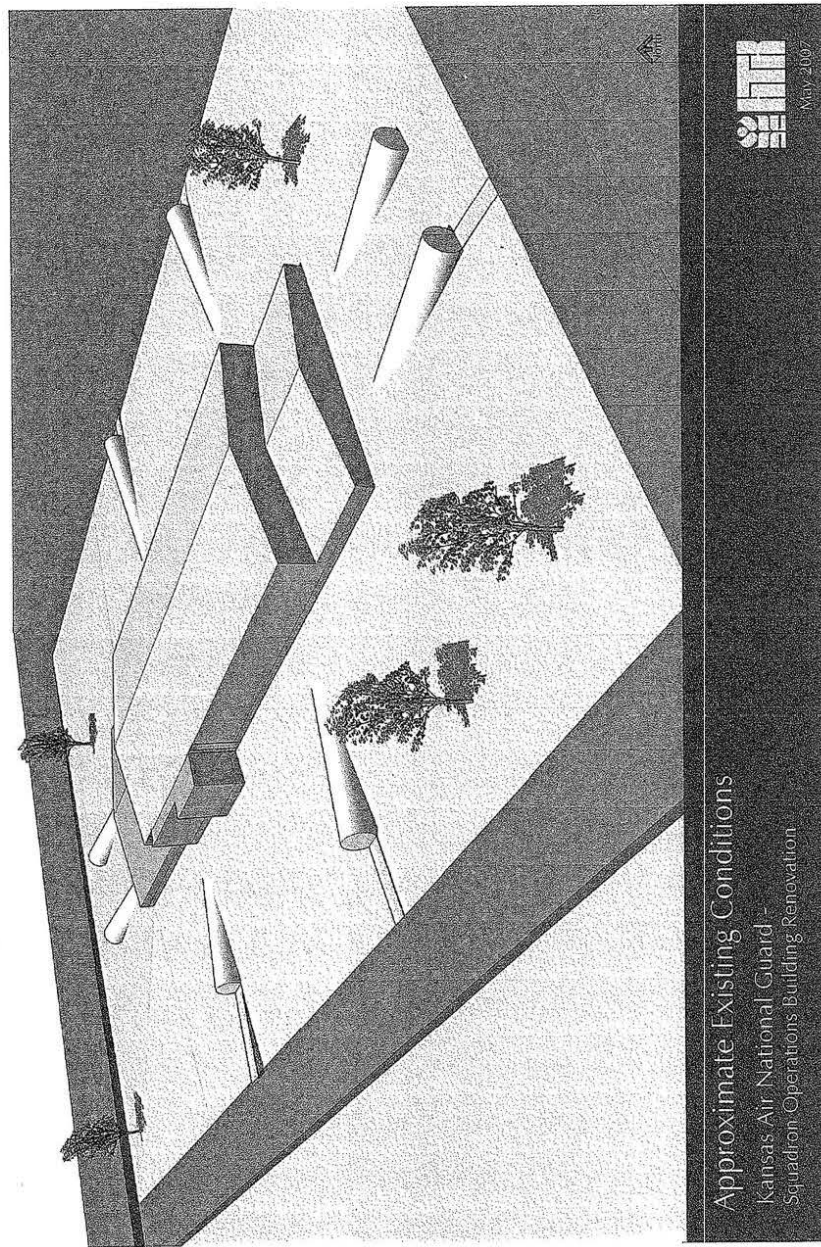
By:  Date: 8/4/09  
Jennie Chinn, Executive Director  
Kansas State Historic Society

MEMORANDUM OF AGREEMENT  
between FORBES FIELD AIR NATIONAL GUARD BASE and  
the KANSAS STATE HISTORIC PRESERVATION OFFICER  
regarding modifications and changes to BUILDING 679  
4 of 5

Attachments:

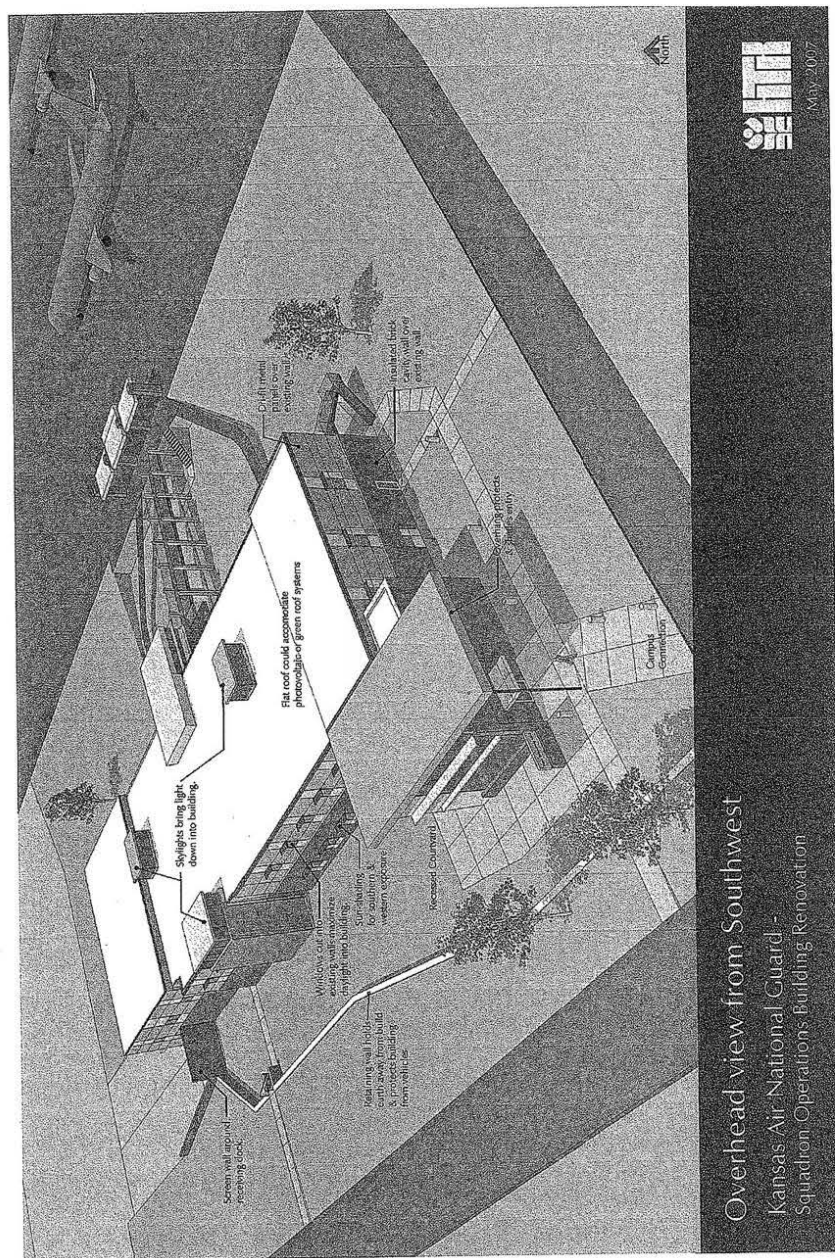
1. Drawing, Approximate Existing Conditions
2. Drawing, Overhead view from Southwest
3. Map, Forbes Field
4. Photo, Building 679, Forbes Field

MEMORANDUM OF AGREEMENT  
between FORBES FIELD AIR NATIONAL GUARD BASE and  
the KANSAS STATE HISTORIC PRESERVATION OFFICER  
regarding modifications and changes to BUILDING 679  
5 of 5



Memorandum of Agreement: 190 ARW & KS SHPO

Attachment I



Memorandum of Agreement: 190 ARW &amp; KS SHPO

Attachment 2

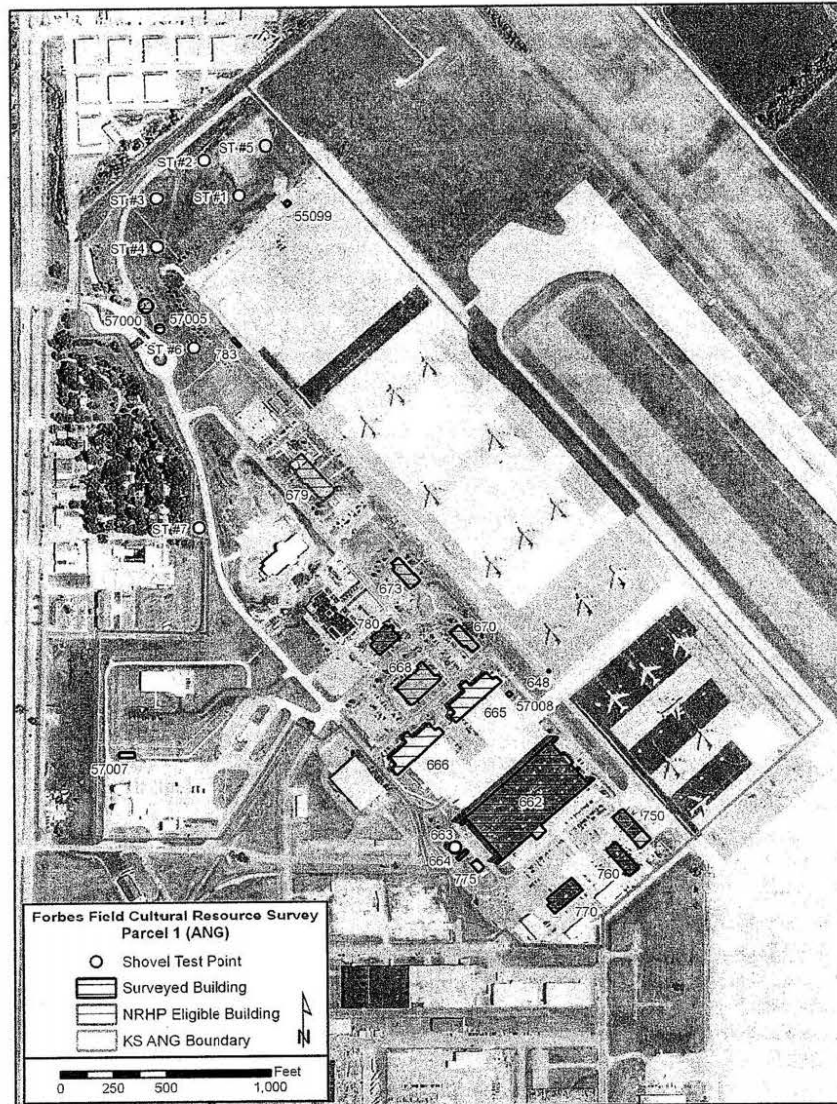
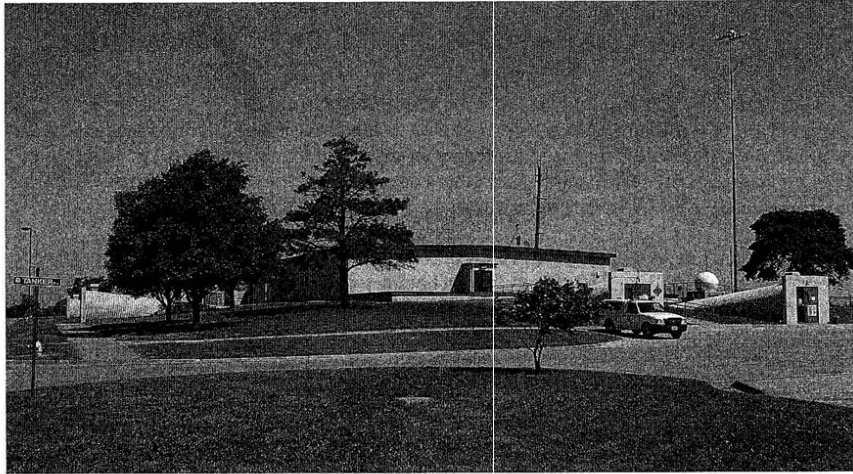
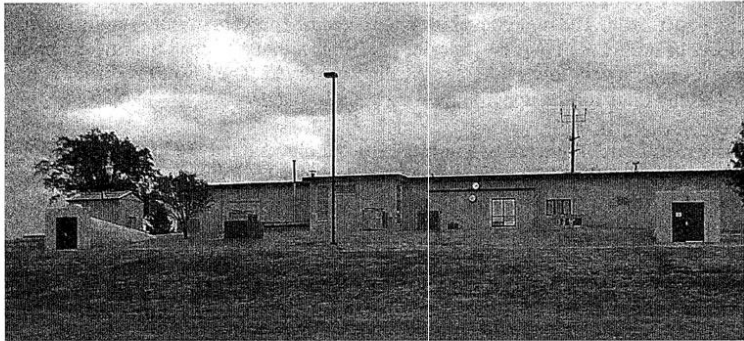


FIGURE 4-1. PARCEL 1 FORBES FIELD ANG BASE – CULTURAL RESOURCES SURVEY COVERAGE MAP





**Figure 0-1: Building 679 overview, view to the north**



**Figure 0-2: Building 679 southwest elevation.**

Memorandum of Agreement: 190 ARW & KS SHPO

Attachment 4



# KANSAS

KSR&C No. 08-05-040

Kansas State Historical Society  
Patrick Zollner, Director, Cultural Resources Division

KATHLEEN SEBELIUS, GOVERNOR

June 18, 2008

Marjorie Nowick  
Engineering-Environmental Management, Inc.  
9563 South Kingston Court  
Englewood, CO 80112

Re: Cultural Resources Survey of Forbes Field Air National Guard Base  
Shawnee County

Dear Ms. Nowick:

In accordance with 36 CFR 800, the Kansas State Historic Preservation Office has reviewed a report entitled *Cultural Resources Survey and Evaluation Report for Kansas Air National Guard Properties at Forbes Field, Topeka, Kansas*, by Marjorie Nowick of Engineering-Environmental Management, Inc. We find the report to be acceptable and concur with its conclusion that Building 679 is potentially eligible for listing in the National Register of Historic Places. Our office also concurs with the determination that the other buildings surveyed are not eligible at this time.

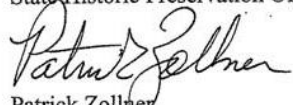
We further conclude that the archeological investigations described in the report are sufficient and concur with the recommendation that no further survey or testing will be necessary.

Before receiving your survey and report, our office reviewed and cleared a proposed renovation project for Building 679 in a letter dated May 6, 2008. Upon receipt of your report with new information regarding the eligibility of Building 679, we contacted Mark Green at the Kansas Air National Guard and asked that the project be placed on hold. Since the proposed project will drastically alter Building 679, we have determined that it will constitute an adverse effect. At this point, we would like to consult with the Kansas Air National Guard to explore ways to avoid or minimize the adverse effect.

Thank you for giving us the opportunity to comment. Please submit any comments to Julie Weisgerber at 785-272-8681, ext 226.

6425 SW Sixth Avenue • Topeka, KS 66615-1099  
Phone 785-272-8681 Ext. 217 • Fax 785-272-8682 • Email pzollner@kshs.org • TTY 785-272-8683  
www.kshs.org

Sincerely,  
Jennie Chinn  
State Historic Preservation Officer



Patrick Zollner  
Director, Cultural Resources Division  
Deputy State Historic Preservation Officer

CC: Jan Gray Yagley, Cultural Resources Program Manager, Air National Guard  
Matt Nowkowski, NEPA and Cultural Resources Technical Advisor  
Major Mark Green, KSANG, Forbes Field Air National Guard Base



# NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES

State of New Hampshire, Department of Cultural Resources  
 19 Pillsbury Street, Concord, NH 03301-5570  
 TDD Access: Relay NH 1-800-735-2964  
 www.nh.gov/dhr

603-271-3488  
 603-271-3558  
 FAX 603-271-3433  
 presentation@dcir.nh.gov

February 5, 2009

David A. Nylund, GS-12  
 NH Air National Guard  
 157 ARW/EM  
 302 Newmarket Street  
 Pease ANGB, NH 03803-0157

Dear Mr. Nylund,

Thank you for requesting a determination of National Register eligibility for the area listed below. As requested, the Division of Historical Resources' Determination of Eligibility Committee has reviewed the *DHR Area Form* prepared by you; based on the information available, the DOE Committee's evaluation of National Register eligibility is:

TOWN/CITY	PROPERTY	DETERMINATION
Newington	Pease International Tradeport, NWN-PAFB	Not Eligible

A copy of the DHR evaluation form is attached for your use. The inventory data and the evaluation will also be added to the statewide survey database for historic properties in New Hampshire.

Please call Mary Kate Ryan (271-6435) if you have questions.

Sincerely,

Christina St. Louis  
 Program Specialist

Enclosure

cc: Elizabeth Muzzey, Director / State Historic Preservation Officer  
 William Rutter, SAIC, Inc.

NH Division of Historical Resources  
Determination of Eligibility (DOE)

Date received: 12/24/2008

Inventory #: ~~N/A~~ NWN - PAFB

Date of group review: 1/14/2009

Area: Pease AFB

DHR staff: Nadine

Town/City: Newington

Property name: Pease Air Force Base

County: Rockingham

Address: Pease International Tradeport Pease Blvd./Newington Road., Aboretum Dr.

Reviewed for: ☒ R&C ☐ PTI ☐ NR ☐ SR ☐ Survey ☐ Other  
NH Air National Guard

Individual Properties

NR SR  
☐ ☐ Eligible  
☐ ☐ Eligible, also in district  
☐ ☐ Eligible, in district  
☒ ☒ Not eligible  
☐ ☐ More information needed  
☐ ☐ Not evaluated for individual eligibility

Districts

NR SR  
☐ ☐ Eligible  
☒ ☒ Not eligible  
☐ ☐ More information needed  
☐ ☐ Not evaluated @ district

Integrity: ☒ Location ☐ Design ☐ Setting ☐ Materials  
☐ Workmanship ☐ Feeling ☐ Association

Criteria: ☐ A. Event ☐ B. Person ☐ C. Architecture/Engineering  
☐ D. Archaeology ☐ E. Exception

Level: ☐ Local ☐ State ☐ National

STATEMENT OF SIGNIFICANCE:

☐ IF THIS PROPERTY IS REVIEWED IN THE FUTURE, ADDITIONAL DOCUMENTATION WILL BE NEEDED.

This area form evaluates 218 acres of a former air base originally containing 4,300+ acres, consisting of functional military buildings and structures clustering in the northeast quadrant of the Pease International Tradeport, a commercial park redeveloped across most of the former air force base. Field reconnaissance, archival and literature research, photography, and assessment of the Pease building assemblage dating to the Cold War period (prior to 1990) resulted in the determination that none of the structures meet the criteria for listing in the National Register of Historic Places either individually or as a historic district. The area is characterized by its incomplete, scattered and incohesive character of surviving buildings and structures, many of which have been heavily altered or removed.

☒ ENTERED INTO DATABASE

ACREAGE: 218

PERIOD OF SIGNIFICANCE: N/A

AREA OF SIGNIFICANCE: N/A

BOUNDARY:

SURVEYOR: William Rutter, SAIC, Inc.

FOLLOW-UP: Notify agency and consultant. Thank you for the high-quality submittal following NHDHR guidelines.

Final DOE approved by:

*Wendy Carter*



NEW HAMPSHIRE DIVISION OF HISTORICAL RESOURCES

State of New Hampshire, Department of Cultural Resources  
19 Pillsbury Street, Concord, NH 03301-3570  
TDD Access: Relay NH 1-800-735-2964  
www.nh.gov/dohmr

603-271-3483  
603-271-3558  
FAX 603-271-3433  
preservation@dcr.nh.gov

February 19, 2009

David Nylund  
Environmental Manager  
NHANG  
157 ARW/EM  
302 Newmarket Street  
Pease ANGB, NH 03803-0157

Re: Review of Draft Final Cultural Resources Survey (CRS)  
Historic District Area Form Pease AFB  
Pease ANGB, NH

Dear Mr. Nylund:

In accordance with Section 106 of the National Historic Preservation Act (16 U.S.C. 470), and with federal Advisory Council on Historic Preservation regulations, *Protection of Historic Properties* (36 CFR Part 800), the New Hampshire Division of Historical Resources (DHR)/State Historic Preservation Office has reviewed the information submitted on December 3, 2008 and December 24, 2008 in regards to the above-referenced property. A Cultural Resources Survey and a Historic District Area Form for Pease AFB were submitted. The area form evaluated 218 acres of the former air base originally containing 4,300+ acres, consisting of functional military buildings and structures clustering in the northeast quadrant of the Pease International Tradeport, a commercial park redeveloped across most of the former air force base. The DHR concurred that none of the structures meet the criteria for listing in the National Register of Historic Places either individually or as a historic district. With respect to archaeological resources, DHR staff concurs with the findings in the Cultural Resources Survey.

Thank you for the opportunity to comment.

Sincerely,

Elizabeth H. Muzzey  
Director/State Historic Preservation Officer



Commonwealth of Pennsylvania  
Pennsylvania Historical and Museum Commission  
Bureau for Historic Preservation  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093  
[www.phmc.state.pa.us](http://www.phmc.state.pa.us)

April 22, 2011

John Tower, LTC, PA ANG  
Pennsylvania Air National Guard  
Headquarters 171<sup>st</sup> Air Refueling Wing  
Pittsburgh International Airport  
Coraopolis, PA 15108

Re: ER 85-1695-003-000

DOD: Renovation of Maintenance Hangers, Buildings 301 and 302  
171<sup>st</sup> Air Refueling Wing, Pennsylvania Air National Guard,  
Pittsburgh International Airport, Findlay Township, Allegheny County

Dear Ltc. Tower:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004. These regulations require consideration of the project's potential effect upon both historic and archaeological resources.

We concur with the findings of the agency that the following properties are not eligible for listing in the National Register of Historic Places due to a loss of integrity.

Hangers 301 and 302, Pittsburgh International Airport  
Findlay Township, Allegheny County

If you need further information in this matter please consult Susan Zacher at (717) 783-9920.

Sincerely,

A handwritten signature in black ink, appearing to read "Andrea L. MacDonald".

Andrea L. MacDonald, Chief  
Division of Preservation Services

AM/snz



Commonwealth of Pennsylvania  
Pennsylvania Historical and Museum Commission  
**Bureau for Historic Preservation**  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093  
[www.phmc.state.pa.us](http://www.phmc.state.pa.us)

13 December 2011

Teresa Rudolph  
TEC, Inc.  
250 Bobwhite Court, Suite 200  
Boise, ID 83706

TO EXPERT REVIEW USE  
BHP # 1695-003-RRR

Re: ER# 1985-1695-003-RRR  
DOD: Draft Final Cultural Resource Survey,  
171<sup>st</sup> Air Refueling Wing, Findlay  
Township, Allegheny County

Dear Ms. Rudolph:

The Bureau for Historic Preservation (the State Historic Preservation Office) has reviewed the above named project in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004. These regulations require consideration of the project's potential effect upon both historic and archaeological resources.

**Archaeology**

This report meets our standards and specifications as outlined in *Guidelines for Archaeological Investigations in Pennsylvania* (BHP 2008) and the Secretary of the Interior's Guidelines for Archaeological Documentation. It is our opinion that the portion of the Colfer/Rieck Farm Site (36AL0626) within the area-of-potential-effect (APE) would not contribute to the eligibility of the overall resource and no further archaeological work is necessary for this project. Should the scope of the project change and ground disturbance outside of the current facility fencing be undertaken, additional archaeological investigation may be necessary.

Please send three copies of the final report (one unbound and all with original photographs) for our files and distribution to the various repositories.

**Historic Structures**

Thank you for including a Historic Resource Survey form for the facility in your archaeological report. We are unable to process this bound copy cannot be forwarded for National Register review. Please submit an unbound copy of the form, maps and any photos showing the buildings.



Page 2  
12/13/2011  
Ms. Rudolph  
ER 1985-1695-003-RRR

If you need further information regarding archaeological resources, please contact Kira Heinrich at (717) 705-0700. If you need further information concerning historic structures, please contact Susan Zacher at (717) 783-9920.

Sincerely,

A handwritten signature in dark ink, appearing to read "Doug McLearen", followed by a small "(for)" in parentheses.

Douglas C. McLearen, Chief  
Division of Archaeology &  
Protection

DCM/kmh



August 23, 2007

Matt Nowakowski  
National Guard Bureau NGB/A7CVN  
Conaway Hall – Air National Guard Readiness Center  
3500 Fetchet Avenue  
Andrews AFB, MD 20762

Re: 121 ARW Ohio ANG, Rickenbacker IAP, Draft Final Cultural Resources Survey  
Hamilton Township, Franklin County, Ohio

Dear Mr. Nowakowski,

This is in response to correspondence from Roger A. Jones, Ohio Air National Guard, dated May 16, 2007 (received May 18) regarding cultural resource management program development at Rickenbacker IAP. The comments of the Ohio Historic Preservation Office (OHPO) are submitted in accordance with provisions of the National Historic Preservation Act of 1966, as amended (16 U.S.C. 470).

The report documents archaeological and architectural surveys of the portion of Rickenbacker that is occupied by the 121<sup>st</sup> Air Refueling Wing, Ohio Air National Guard. We have further comments on this, below. We agree that the surveys fulfill National Guard Bureau responsibilities to identify historic properties in this portion of Rickenbacker. We also agree that the buildings and structures included in and evaluated as part of this survey within this portion are not part of a larger historic district. The archaeological survey included background review, pedestrian walk-over, and shovel testing. The results of the archaeological survey include the identification of 2 archaeological sites, both isolated finds. We concur that sites 33-FR-2652 and 33-FR-2653 do not meet National Register eligibility criteria and do not warrant further investigations. We agree that no further archaeological survey is necessary for this portion of Rickenbacker. We recommend that the Cultural Resources Management Plan should provide for contingencies if archaeological deposits are identified in the future. The architectural survey included systematic recording of 18 buildings and structures within the 121<sup>st</sup> AFW portion of Rickenbacker. Recordation and evaluation was based on the context developed for this survey. We agree that the two maintenance hangars, Building 885 and Building 888 should be regarded as eligible for inclusion in the National Register of Historic Places. These two buildings are recorded as Ohio Historic Inventory FRA-9632-25 and FRA-9634-25. We also agree that the following buildings and structures do not meet National Register eligibility criteria: 670, 846, 849, 872, 873, 875, 879, 880, 882, 887, 911, 913, and 916. (See attached list that provides corresponding Ohio Historic Inventory numbers for building numbers.)

**OHIO HISTORICAL SOCIETY**

*Ohio Historic Preservation Office*

567 East Hudson Street, Columbus, Ohio 43211-1030 ph: 614.298.2000 fx: 614.298.2037  
[www.ohiohistory.org](http://www.ohiohistory.org)

Mr. Matt Nowakowski  
August 23, 2007  
Page 2

The Pilots' Memorial Monuments site (described in the draft report as Building 805) is a modern commemorative memorial that includes static, and sometimes temporary, displays. These kinds of cultural resources are difficult to deal with under the National Historic Preservation Act. This memorial is important. We recommend that this memorial site should be specifically included and given separate consideration in the Cultural Resources Management Plan.

As shown in Figure 5-1 on Page 5-3, the 121<sup>st</sup> Air Refueling Wing (ARW) occupies a portion of the Rickenbacker International Airport (Rickenbacker IAP). Rickenbacker IAP is a relatively recent redesignation and many folks still commonly refer to this as Rickenbacker Air Force Base. At several places the draft report appears to use almost interchangeably the terms 121<sup>st</sup> ARW and Rickenbacker and we are concerned that this can cause confusion. For example, see the opening sentence on Page 5-1. There have been several surveys that included recordation of architectural properties within or adjacent to Rickenbacker, but this current survey only included 18 buildings and structures within the 121<sup>st</sup> ARW portion of Rickenbacker. Because this interchanging use of Rickenbacker and 121<sup>st</sup> ARW occurs in several places we recommend some editing to make sure that the scope of the present survey is clearly distinguished. As noted above, we agree that the scope of the current archaeological and architectural survey is appropriate and fulfills National Guard Bureau responsibilities to complete the inventory of cultural resources within the 121<sup>st</sup> ARW, Ohio Air Force National Guard, portion of Rickenbacker IAP.

The report is readable and relatively free of typographical errors. In order to improve a little bit the readability and to provide some minor clarification, we suggest a number of editorial changes to assist in final editing. As previously noted, it is important to clarify the scope of the survey versus the extent of the entire airport. And we have also noted that Building 805 is a site. The township, Hamilton, should be added to the title. In the Abstract, in the third sentence of the second paragraph, we suggest adding that the assessment is of the 18 buildings of the 121<sup>st</sup> ARW building assemblage. As currently written it appears that there were 121 buildings assessed. On Page 1-1, as noted in copy, clarification is needed for the "...104 FW" reference. And, beginning on Page 1-1 and throughout, it would be helpful to make sure that 121 ARW is 121<sup>st</sup> ARW. You have noted the change on Page 2-7. On Page 2-15, the end of the first paragraph (lines 10-14) is confusing. We recommend shortening this section considerably. Your change on Page 2-20 is noted. On Page 2-24, line 7, change undermine to another word – perhaps dispel. On Page 3-1 there is a reference to massive ground disturbance throughout virtually all of Rickenbacker. We are not certain that this is true. It is certainly true for the 121<sup>st</sup> ARW portion. It still appears to us that there are strips of land along the southeast corner of Rickenbacker where archaeological survey has not been conducted, or even considered. On Page 5-13, Figure 5-9, it appears that the photograph shows the southwest and southeast elevations. On Page 5-19, Building 882 is a structure. On Page 5-23, Figure 5-18, photograph appears to show the northwest and southwest elevations. On Page 5-23, bottom, line 17, ...its appearance and plan have (not has) been... On

Mr. Matt Nowakowski  
August 23, 2007  
Page 3

Page 5-24, Figure 5-19, photograph appears to show northeast and southeast elevations. On Page 5-34, the light poles (Building 81004) are structures. On Page 6-1, line 13, the guidelines have been consulted (maybe some other word? "Employed" doesn't sound right to our ears.) Your change on Page 7-3 is noted. Figure 7-1 doesn't include options for seeking public input, it should.

Please make sure that original inventory forms have been submitted to the Ohio Historic Preservation Office. We don't have an inventory form for Building 886 (see in text and appendix). From the description we don't need a form for Building 886, but a form for Building 887 would be helpful (see attached). From the description (a small, plain, electrical utility shed) we don't need a photograph of Building 886.

In addition to providing a report of a cultural resources management survey, the report also offers a good deal of information on maintaining cultural resources as an integral part of the environmental review process within the 121<sup>st</sup> ARW, Ohio Air Force National Guard. And, it is our understanding that this part of the report will provide the foundation for developing an agreement with the Ohio Historic Preservation Office that establishes authority for the Ohio Air Force National Guard to complete, as stipulated in the agreement, Section 106 reviews without requiring separate OHPO concurrence. Provided that we follow the provisions of the National Historic Preservation Act, we believe that it is appropriate and beneficial for agencies to assume responsibility for managing historic properties and for directing Section 106 reviews. We encourage the National Guard Bureau and the Ohio Air Force National Guard to continue the development of a programmatic agreement towards these ends.

One of the reasons that we stress the importance of completing Ohio Historic Inventory forms for historic properties is that these inventory forms provide a vitally important foundation that will support future decisions. Reaching decisions on maintenance will be facilitated by careful attention to detail in these beginning steps. We are not providing here final comments on the Ohio Historic Inventory forms or on the descriptions of Buildings 885 and 888. Additional comments on inventory forms will be provided in the near future under separate cover.

In many ways the report succeeds in laying out some broad preservation objectives, but we believe that much more work is needed to complete a Cultural Resources Management Plan. The additional work needs to emphasize specificity. For example, the report indicates that an annual inspection of historic properties is desirable, but it doesn't tell us who is to conduct the inspection,

Mr. Matt Nowakowski  
August 23, 2007  
Page 4

what information is to be recorded, and how the results of the inspection will be processed and disseminated. Does some peeling of paint on one of the cantilevered door panels on one of the hangars indicate a problem that requires action? In sum, there are too many general statements from the Secretary of the Interior's Standards (36 CFR 67) and not enough actions statements that tell us how these will be applied at Rickenbacker.

Any questions concerning this matter should be addressed to Lisa Adkins or David Snyder at (614) 298-2000, between the hours of 8 am. to 5 pm. Thank you for your cooperation.

Sincerely,



David Snyder, Ph.D., Archaeology Reviews Manager  
Resource Protection and Review

DMS/ds (OHPO Serial Number 1013050)

Attachment

xc: Roger A. Jones, Environmental Manager, Ohio Air National Guard, HQ 121<sup>st</sup> ARW, 7370 Minuteman Way, Columbus, OH 43217-5875  
Lorraine Gross, SAIC, 405 Eighth Street, Suite 301, Boise, ID 83702

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**Appendix B5**

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***Final EIS Distribution List***





**Forbes ANG**

Joe Summerlin, NEPA Reviewer, U.S. Environmental Protection Agency, Region 7, 11201 Renner Blvd, Lenexa, KS 66219  
U.S. Fish and Wildlife Service, Kansas Ecological Services Field Office, 2609 Anderson Ave, Manhattan, KS 66502-2801  
Federal Aviation Administration, Central Region, 901 Locust St, Kansas City, MO 64106-2641  
John Mitchell, Kansas Department of Health and Environment, Division of Environment, 1000 SW Jackson, Ste 400, Topeka, KS 66612-1367  
Kansas Department of Wildlife and Parks, Region 2, 300 SW Wanamaker Rd, Topeka, KS 66606  
Jennie Chinn, State Historic Preservation Officer, Kansas State Historical Society, Cultural Resources Division, 6425 SW 6th Ave, Topeka, KS 66615-1099  
Director of Aviation, Kansas Department of Transportation, Dwight D. Eisenhower State Office Building, 700 SW Harrison, Topeka, KS 66603-3754  
Shelly Buhler, Chair, Shawnee County Commissioner, District 1, 200 SE 7th St, Topeka, KS 66603  
Shawnee County Planning Department, 1515 NW Saline St, Ste 102, Topeka, KS 66618  
The Honorable Larry Wolgast, Mayor of Topeka, 215 SE 7th, Room 350, Topeka, KS 66603-3914  
City of Topeka Planning, 620 SE Madison, Topeka, KS 66607  
Eric Johnson, Metropolitan Topeka Airport Authority, Forbes Field, Building 620, Topeka, KS 66619  
Steve Ortiz, Council Chair, Prairie Band Potawatomi Tribe, 16281 Q Rd, Mayetta, KS 66509  
Rick Campbell, Director, Environmental Department, Sac and Fox Nation of Missouri, 305 N Main St, Reserve, KS 66434  
The Honorable Jerry Moran, U.S. Senate, 354 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Pat Roberts, U.S. Senate, 109 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Lynn Jenkins, House of Representatives, 1027 Longworth HOB, Washington, DC 20515  
The Honorable Vicki Schmidt, Kansas Senate, 5906 SW 43rd Ct, Topeka, KS 66610-1632  
The Honorable Lana Gordon, Kansas House of Representatives, 5820 SW 27th St, Topeka, KS 66614  
The Honorable Sam Brownback, Office of the Governor, 300 SW 10th Ave, Ste 241S, Topeka, KS 66612-1590  
Kelli Mosteller, THPO, Citizen Potawatomi Nation, 1601 S Gordon Cooper Dr, Shawnee, OK 74801  
John Barrett, Chairman, Citizen Potawatomi Nation, 1601 S Gordon Cooper Dr, Shawnee, OK 74801  
Tamara Francis, THPO, Delaware Nation, 31064 US Highway 281, Bldg. 100, Anadarko, OK 73005  
Kerry Holton, President, Delaware Nation, PO Box 825, Anadarko, OK 73005  
Guy Munroe, Chairman, Kaw Nation, Drawer 50, Kaw City, OK 74641  
Andrea Hunter, THPO, Osage Nation of Oklahoma, 627 Grandview, Pawhuska, OK 74056  
John Redeagle, Principal Chief, Osage Nation of Oklahoma, PO Box 779, 627 Grandview, Pawhuska, OK 74056  
George Blanchard, Absentee Shawnee Tribe of Oklahoma, 2025 S Gordon Cooper Dr, Shawnee, OK 74801  
Henryetta Ellis, THPO, Absentee Shawnee Tribe of Oklahoma, 2025 S Gordon Cooper Dr, Shawnee, OK 74801  
Glenna Wallace, Chief, Eastern Shawnee Tribe of Oklahoma, 12755 S 705 Rd, Wayandotte, OK 74370  
Leslie Standing, President, Wichita and Affiliated Tribes, PO Box 729, Anadarko, OK 73005  
John Armbrust, Governor's Military Council, 501 Poyntz Ave, Manhattan, KS 66502  
Rick Taylor, Topeka, KS 66614  
Neil Dobbler, Chamber of Commerce, 1200 SW Executive Dr, Topeka, KS 66615  
Elizabeth Patton, Manhattan, KS 66502  
Gina Penzig, Westar Energy, PO Box 889, Topeka, KS 66601  
Allan Towle, Topeka, KS 66614  
Christine Tipton, Topeka, KS 66617  
Bob Archer, Shawnee County Commission, District 3, 3522 SW Westport Ct., Topeka, KS 66614

**JB MDL**

Eric Davis, Supervisor, U.S. Fish and Wildlife Service, New Jersey Ecological Services Field Office, 927 N Main St, Bldg D, Pleasantville, NJ 08232  
Environmental Review Coordinator, U.S. Environmental Protection Agency, Region 2, 290 Broadway, New York, NY 10007-1866

Richard Shaw, State Soil Scientist, Natural Resources Conservation Service, New Jersey State Office, 220 Davidson Ave, 4th Floor, Somerset, NJ 08873

Paul Phifer, Ph.D., Assistant Regional Director, Ecological Services, U.S. Fish and Wildlife Service, Region 5, 300 Westgate Center Dr, Hadley, MA 01035-9589

Ruth W. Foster, PhD, Supervisor, New Jersey Department of Environmental Protection, Office of Permit Coordination and Environmental Review, 401 E State St, 7th Floor, PO Box 420, Trenton, NJ 08625-0420

Daniel Saunders, Administrator and Deputy State Historic Preservation Officer, New Jersey Department of Environmental Protection, Historic Preservation Office, PO Box 420, Trenton, NJ 08625-420

New Jersey Division of Fish and Wildlife, Endangered and Nongame Species Program, Department of Environmental Protection, PO Box 420, Trenton, NJ 08625-420

Ernie Deman, Supervising Environmental Specialist, New Jersey Pinelands Commission, 15 Springfield Rd, New Lisbon, NJ 08064

Coordinator, Regional Planning, Burlington County, 50 Rancocas Rd, Mount Holly, NJ 08060

Mary Pat Robbie, Director, Resource Conservation, Burlington County, PO Box 6000, Mount Holly, NJ 08060

Mark Gould, Chairperson, Nanticoke-Lenni-Lenape Indians of New Jersey, 18 E Commerce St, PO Box 544, Bridgeton, NJ 08302

Dwayne Perry, Chief, Ramapough Mountain Indians, 189 Stag Hill Rd, Mahwah, NJ 07430

Joanne Bundy Hawkins, Powhattan-Renape Nation, Rankokus Indian Reservation, PO Box 225, Rancocas, NJ 08073

The Honorable Thomas Harper, Mayor of Wrightstown, 21 Saylor's Pond Rd, Wrightstown, NJ 08562

The Honorable Ronald Francioli, Mayor of New Hanover Township, 1000 Route 10, PO Box 250, Whippany, NJ 07981

The Honorable Jim Durr, Mayor of North Hanover Township, 41 Schoolhouse Rd, Jacobstown, NJ 08562

The Honorable David Patriarca, Mayor of Pemberton Township, 500 Pemberton-Browns Mills Rd, Pemberton, NJ 08068-1539

The Honorable Denis McDaniel, Mayor of Springfield Township, PO Box 119, Jobstown, NJ 08041

The Honorable Michael Reina, Mayor of Jackson Township, 95 W Veterans Hwy, Jackson, NJ 08527

The Honorable Mike Fressola, Mayor of Manchester Township, 1 Colonial Dr, Manchester, NJ 08759

The Honorable David Leutwyler, Mayor of Plumsted Township, 121 Evergreen Rd, New Egypt, NJ 08533

The Honorable Jeff Chiesa, U.S. Senate, 141 Hart Senate Office Bldg, Washington, DC 20510

The Honorable Robert Menendez, U.S. Senate, 528 Hart Senate Office Bldg, Washington, DC 20510

The Honorable Jon Runyun, House of Representatives, 1239 Longworth HOB, Washington, DC 20515

The Honorable Chris Smith, House of Representatives, 2373 Rayburn House Office Building, Washington, DC 20515

The Honorable Chris Christie, Office of the Governor, PO Box 001, Trenton, NJ 08625

The Honorable Samuel Thompson, New Jersey Senate, 2501 Highway 516, Ste 101, Old Bridge, NJ 08857

The Honorable Robert Clifton, New Jersey Assembly, 516 Route 33 West, Bldg 2, Ste 2, Millstone, NJ 08535

The Honorable Ronald Dancer, New Jersey Assembly, 405 Rt 539, Cream Ridge, NJ 08514

Megan Branatti, New Jersey Department of Environmental Protection, 401 E State St, Trenton, NJ 08625

Ian Marquez, U.S. Marine Corps, 15 Brynmore Rd, New Egypt, NJ 08533

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Emil Kaunitz, Def Enhancement Coalition, 1451 Rt 37 W, Toms River, NJ 08755

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Paula Pechonick, Chief, Delaware Tribe of Indians, 170 NE Barbara St, Bartlesville, OK 74006

Chester Brooks, Trust Board Chairman, Delaware Tribe of Indians, 170 NE Barbara St, Bartlesville, OK 74006

Catherine Costa, Chairwoman, Burlington County Soil Conservation District, 1971 Jacksonville-Jobstown Road, Columbus, NJ 08022

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Mike Warner, Mt Laurel, NJ 08054

**Pease ANGS**

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The Honorable Kelly Ayotte, U.S. Senate, 144 Russell Senate Office Bldg, Washington, DC 20510  
The Honorable Jeanne Shaheen, U.S. Senate, 520 Hart Senate Office Bldg, Washington, DC 20510  
The Honorable Carol Shea-Porter, House of Representatives, 1530 Longworth House Office Bldg, Washington, DC 20515  
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Joe Simeone, Stratton, NH 03885  
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The Honorable Dean Trefethen, Mayor of City of Dover, 288 Central Ave, Dover, NH 03820-4169  
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Bob Jefson, Rochester, NH 03867  
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### **Pittsburgh ANG**

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**Rickenbacker ANG**

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Tom Foster, Columbus, OH 43207

Carolyn Eberts, Canal Winchester, OH 43110  
Joseph Carr, Columbus, OH 43213  
Paul Pence, Lockbourne, OH 43137  
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Thomas Gamble, Chairperson, Miami Tribe of Oklahoma, PO Box 1326, Miami, OK 74355-1326  
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Merle St. Claire, Chairman, Turtle Mountain Band of Chippewa Indians of North Dakota, PO Box 900, Belcourt, ND 58316  
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Sherri Clemons, THPO, Wyandotte Nation, 64700 E Highway 60, Wyandotte, OK 74370  
David Schmitt, Columbus, OH 43706  
Jeff Campbell, South Central Power, 2780 Coonpath Rd NE, Lancaster, OH 43130  
Ronald Manuel, Columbus, OH 43207  
Linda Dillman, SE Messenger, 2255 Rohr Rd, Lockbourne, OH 43137  
Laura Keprowski, Mid-Ohio Regional Planning Commission, 111 Liberty St, Ste 100, Columbus, OH 43215  
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Tom Niklas, Columbus, OH 43206  
Nelson Spitler, Westerville, OH 43081  
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Robert Paley, OHARNG, 7533 Walnut Dr, Canal Winchester, OH 43110



**Appendix B6**

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***Public Hearing Transcripts, Responses to  
Comments, and Written Comments on the  
Draft EIS***



DRAFT ENVIRONMENTAL IMPACT STATEMENT  
HEARING PROCEEDINGS  
MARCH 12, 2014  
MUSEUM OF THE KANSAS AIR NATIONAL GUARD  
6700 SOUTH TOPEKA BOULEVARD  
TOPEKA, KANSAS

1 MAJOR BLUBAUGH: Good evening ladies  
2 and gentlemen, and welcome to the public  
3 hearing for the Draft Environmental Impact  
4 Statement for the Second Main Operating Base  
5 Beddown of the KC-46A Tanker Aircraft. I am  
6 Major Joe Blubaugh, with the 190th Air  
7 Refueling Wing's Public Affairs Office, located  
8 at Forbes Field, Topeka, Kansas.

9 First of all, we'd like for you to make  
10 sure that you take advantage of the  
11 refreshments that we have that are over here on  
12 the table. And if you need to use the  
13 restrooms, they're out these back doors and  
14 around to the left.

15 Before starting the formal portion of  
16 tonight's hearing, I ask that all cell phones  
17 be turned off or placed on silent mode. And  
18 during the proceedings, please do not interrupt  
19 the speakers and please be respectful to those  
20 providing oral comments. We will do our best  
21 to give everyone an opportunity to speak in the  
22 time that we have allotted tonight.

23 And at this time, Colonel Wendy Sherman  
24 will now begin the formal portion of tonight's  
25 hearing.

1 COLONEL SHERMAN: Good evening, and  
2 thank you Major Blubaugh. I'm Colonel Wendy  
3 Sherman and I am a Military Judge for the  
4 United States Air Force from Randolph Air Force  
5 Base, Texas. I'd like to make clear from the  
6 outset that I am here in my capacity as a  
7 federal judge solely to act as a moderator for  
8 this hearing. The United States Trial  
9 Judiciary is an independent organization. I do  
10 not work for, or with, anyone in this room.  
11 I'm not a member of this command or assigned to  
12 this installation. I report directly to the  
13 Chief Trial Judge of the United States Air  
14 Force and to the Judge Advocate General of the  
15 Air Force. I have had no involvement with the  
16 preparation of this proposed action or the  
17 Environmental Impact Statement. I have not  
18 rendered legal advice or assistance with  
19 respect to this action. I'm here tonight to  
20 serve as an independent public hearing officer  
21 regarding the Draft Environmental Impact  
22 Statement. I am responsible for providing  
23 everyone an opportunity to comment tonight on  
24 the proposed action, alternatives, and  
25 associated environmental analysis. This public

1 hearing provides you with the formal  
2 opportunity for comment. I do not make any  
3 recommendation or decision on whether the  
4 proposed project should be continued, or  
5 modified, or abandoned or how the Environmental  
6 Impact Statement should be prepared.  
7 Therefore, during the public comment portion of  
8 this hearing I urge you to direct your comments  
9 to the individuals on our panel.

10           The purpose of this public hearing is to  
11 provide you with an opportunity to comment on  
12 the findings of the Draft Environmental Impact  
13 Statement. More importantly, this hearing is a  
14 formal opportunity for you to get involved in  
15 the NEPA Process. This hearing is scheduled to  
16 conclude at 8:00 p.m., but if necessary, will  
17 continue until all comments have been received.  
18 This formal session may end before 8:00 p.m.,  
19 if there are no more comments. However, the  
20 overall hearing, including materials to be  
21 viewed and discussion with team members  
22 individually, will continue until 8:00 p.m.,  
23 unless all interested parties have left the  
24 meeting.

25           If following the presentation any members

1 of the audience have questions regarding  
2 clarification of any points you may not have  
3 understood, you may fill out a question card,  
4 which can be found at the registration desk or  
5 on several tables scattered throughout the  
6 room, or you may raise your hand now and  
7 someone will bring a card to you. Once you  
8 have filled out your question on the card,  
9 please raise your hand again and one of our  
10 staff will collect it from you. Only questions  
11 regarding clarification of the topics presented  
12 will be entertained. General comments on the  
13 action will not be read by our panel, but you  
14 may present your comment orally later in this  
15 hearing or submit it on one of our comment  
16 cards found throughout the room.

17 We will take a ten-minute break to allow  
18 Colonel Krueger, the 190th Air Refueling Wing  
19 staff, National Guard Bureau staff, and the  
20 environmental consultants to review any  
21 questions submitted and identify the best  
22 person to answer each.

23 After the break, we will answer any  
24 questions we have received on the question  
25 cards from the audience. Once questions have



1    been answered, members of the audience who  
2    check the box on the registration cards  
3    indicating their desire to provide oral  
4    comments will be asked to come forward.

5           Registration cards were available at the  
6    registration table as you came in. If you have  
7    not filled out a card or indicated your desire  
8    to speak and wish to do so, please raise your  
9    hand and a card will be provided to you now.

10          In addition, there are materials at the  
11   door describing the official Air National Guard  
12   proposal, the description of the proposed  
13   action and alternatives, and information on the  
14   locations where you can review the Draft  
15   Environmental Impact Statement after tonight,  
16   if you have not already done so.

17          To ensure that all interested citizens  
18   have an opportunity to speak, I will limit the  
19   comments to ten minutes per person. If time  
20   allows after everyone has had an opportunity to  
21   provide their comments, you may have more time.  
22   You will only be allowed to comment when your  
23   name is called. Elected officials and  
24   individuals representing organizations will be  
25   called upon first.

1           A court reporter is recording this  
2     proceeding for the record. We will take a ten-  
3     minute break every hour to allow the court  
4     reporter to take a break.

5           At this time I would like to introduce  
6     and recognize public officials that are present  
7     at the hearing. Mr. Larry Wolgast, the Mayor;  
8     Elizabeth Patton representing U. S. Senator  
9     Jerry Moran; Bob Archer, Chairman of the  
10    Shawnee County Commission; and Kevin Cook,  
11    Shawnee County Commissioner.

12          As mentioned earlier, restrooms are  
13    located outside those doors in the back just  
14    off to the left, and refreshments can be found  
15    near the check-in desk.

16          Throughout this hearing, I ask that you  
17    keep in mind that this public hearing is not a  
18    debate, or any type of vote on the Draft  
19    Environmental Impact Statement, nor is it  
20    primarily designed as a question-and-answer  
21    session, although legitimate, clarifying  
22    questions may be asked. At the conclusion of  
23    this hearing you may discuss the findings of  
24    the Draft Environmental Impact Statement in  
25    greater detail with the staff members from the

1 190th Air Refuelling Wing, National Guard  
2 Bureau, and the consultant's technical  
3 representatives.

4 If you do not wish to provide oral  
5 comments, written comments will be accepted and  
6 will be given equal consideration. Even if you  
7 do make an oral statement, you are welcome to  
8 provide a written statement to reaffirm the  
9 comments you made and any additional comments  
10 you would like to make.

11 Written comments should be sent to the  
12 National Guard Bureau at the address printed on  
13 the comment form that you filled out, or on the  
14 website. The address is also provided on the  
15 comment sheets.

16 All relevant, substantive comments will  
17 be included in the administrative record and  
18 will be addressed in the Final Environmental  
19 Impact Statement. The formal comment period  
20 for the Draft Environmental Impact Statement  
21 ends on March 24th, 2014. It is very important  
22 for you to realize that the Kansas Air National  
23 Guard and the National Guard Bureau will be  
24 open and responsive to your comments and  
25 concerns throughout the NEPA Process.

1           It is a requirement to inform you that  
2           under the Privacy Act of 1974, your name,  
3           address, and comments, if provided during this  
4           NEPA Process, will be:

5           Used to compile mailing lists for sending  
6           project reports, brochures, and other  
7           information concerning the environmental impact  
8           statement to those individuals and groups who  
9           might be interested.

10          Forwarded to federal, state, and local  
11          agencies, and elected officials.

12          The addresses of private individuals will  
13          not, again I repeat "will not," be published in  
14          documents released to the public.

15          Failure to provide the information  
16          requested would prevent delivery of documents  
17          and notification of further developments.  
18          However, documents are available on the project  
19          website and in select libraries, with locations  
20          published in local newspapers.

21          Now, before we proceed with the  
22          presentation, if you have not reviewed a copy  
23          of the Draft Environmental Impact Statement,  
24          copies are available for you to review while in  
25          attendance at this hearing at each of the

10

1 information booths. Further, you may pick up a  
2 CD with the document on it at the check-in  
3 desk. There is also a list of locations where  
4 the Environmental Impact Statement is provided  
5 for public review after this meeting in the  
6 informational handouts. If you did not receive  
7 other informational materials that were  
8 available at the entrance, please raise your  
9 hand and someone will provide them to you.

10 Okay, at this point, I will turn this  
11 over to Colonel Krueger, the Commander for the  
12 190th Air Refuelling Wing.

13 COLONEL KRUEGER: Thank you, Your  
14 Honor. Good evening, my name is Colonel Ron  
15 Krueger, and I'm the Wing Commander of the  
16 Kansas Air National Guard's 190th Air  
17 Refuelling Wing at the Forbes Field Airport.  
18 On behalf of the Kansas Air National Guard, I  
19 want to welcome all of you to this important  
20 public hearing regarding the Draft  
21 Environmental Impact Statement for the proposed  
22 beddown of the KC-46A tanker aircraft. It is  
23 our goal this evening to provide you with  
24 information about the proposed aircraft beddown  
25 and the National Environmental Policy Act,

1 commonly referred to as NEPA, and to ensure  
2 your maximum participation and understanding of  
3 this process.

4 I would like to introduce you to  
5 individuals who are here this evening to assist  
6 in answering questions about the aircraft  
7 conversion and to facilitate your participation  
8 in commenting on the findings of the Draft  
9 Environmental Impact Statement.

10 You have already met Colonel Wendy  
11 Sherman, Judge Advocate, from Randolph Air  
12 Force Base, Texas. She will be presiding over  
13 this evening's hearing. Next, we have First  
14 Lieutenant Jarrod Brunkow, the 190th Air  
15 Refuelling Wing's Environmental Manager, who  
16 will provide you with an overview of the  
17 proposed action and alternatives; and Anne  
18 Rowe, from the National Guard Bureau, who will  
19 be explaining some key considerations regarding  
20 the National Environmental Policy Act.

21 We have also have a number of other  
22 individuals who have been involved in the  
23 development of the Environmental Impact  
24 Statement. They are from the Kansas Air  
25 National Guard, the National Guard Bureau, and

12

1 Cardno TEC, our environmental consultants.  
2 They will be available after the current formal  
3 session to answer questions and to help  
4 facilitate this process. You will find that  
5 any member in uniform or with an EIS name tag  
6 can either answer your questions or direct you  
7 to the right individual to answer your  
8 questions.

9 The greater Topeka community is important  
10 to the 190th Air Refuelling Wing, and community  
11 input is valuable to the environmental  
12 analysis. Forbes Field Airport is the current  
13 home of the 190th Air Refuelling Wing. Many of  
14 our current, as well as retired, members live  
15 in the Topeka area. We are a part of this  
16 community.

17 Many of you have been consistently  
18 supportive of the military and of the 190th Air  
19 Refuelling Wing. This community helped foster  
20 the development of the Kansas Air National  
21 Guard as well as the 190th Air Refuelling Wing  
22 over the years. This support is and has been  
23 deeply appreciated. Like you, our members live  
24 and work in this community and care deeply  
25 about its future. This is home to us all.

1           The proposed action is for the Air Force  
2   to replace a portion of the existing KC-135  
3   aerial refuelling fleet with the KC-46A, which  
4   will be a new aircraft to the Air Force's  
5   fleet. As such, the Air Force plans to  
6   identify locations for the beddown of a formal  
7   training unit (also known as "FTU") and the  
8   First Main Operating Base (also known as "MOB  
9   1"), which will both be led by active duty  
10   units. This has been the subject of a separate  
11   Environmental Impact Statement and is not part  
12   of this discussion tonight. The Air Force will  
13   also beddown the KC-46A at a Second Main  
14   Operating Base (also known as "MOB 2"), which  
15   will be led by an Air National Guard unit.  
16   This hearing is regarding the Second Main  
17   Operating Base beddown only, as the FTU and MOB  
18   1 beddown are the subject of a separate action.

19           The National Guard Bureau has prepared  
20   the Draft Environmental Impact Statement to  
21   analyze the potential impacts of the MOB 2  
22   KC-46A beddown. The Draft Environmental Impact  
23   Statement analyzes potential environmental  
24   consequences that could result from the  
25   proposed beddown of 12 KC-46A aircraft at any



1 of five alternative Air National Guard

2 installations, including:

3 Forbes Air National Guard Station,

4 Kansas;

5 Joint Base McGuire-Dix-Lakehurst, New

6 Jersey;

7 Pease Air National Guard Station, New

8 Hampshire;

9 Pittsburgh Air National Guard Station,

10 Pennsylvania; and

11 Rickenbacker Air National Guard Station,

12 Ohio.

13 The no-action alternative is required by

14 the National Environmental Policy Act, and was

15 evaluated also to provide a baseline for

16 decision-makers. The no-action alternative

17 evaluates the environmental consequences of not

18 basing the KC-46A aircraft at any installation.

19 Under the no-action alternative, no

20 installation would be selected to host the

21 KC-46A for the Second Main Operating Base.

22 In 2013, the Secretary of the Air Force

23 announced Pease Air National Guard Station as

24 the preferred alternative for the KC-46A Second

25 Main Operating Base. The United States Air

1 Force selected Pease Air National Guard Station  
2 based on an operational analysis, results of  
3 site surveys, and military judgment factors.  
4 We would like to emphasize that although the  
5 preferred alternative for the beddown has been  
6 announced, no final decision has been made on  
7 the basing of the KC-46A aircraft currently  
8 under analysis in this draft EIS. Until a  
9 decision is made by the Secretary of the Air  
10 Force, all alternatives are still under  
11 consideration and are treated equally.

12 As shown on the poster boards, as a  
13 result of the Proposed Action, there would be a  
14 change to the type of aircraft based at the  
15 selected installation; a change to the mix of  
16 aircraft using the associated airspace; changes  
17 to staffing and manpower at the selected  
18 location; changes to the number of airfield  
19 operations; as well as minor required  
20 construction, building renovation, and facility  
21 demolition. There would be no new or modified  
22 airspace required to support this action. The  
23 proposed aircraft beddown is estimated to begin  
24 in late 2017 or 2018 for the National Guard  
25 Bureau.

16

1           If Forbes Air National Guard Station is  
2     selected for the MOB 2 KC-46A beddown, 12  
3     KC-135 aircraft would be replaced by 12 KC-46A  
4     aircraft, personnel would increase by 194  
5     individuals, total airfield operations would  
6     increase by 17 percent, and the acreage off  
7     airport-controlled property within the 65  
8     decibel Day-Night Average Sound Level noise  
9     contour would decrease by 55 acres. If Forbes  
10    is not chosen for the beddown of the KC-46A  
11    tanker aircraft, the existing KC-135 will  
12    remain at the base for the foreseeable future.

13           Again, I want to thank you for your  
14    attendance and your interest this evening.  
15    Please let me know if I can be of further  
16    assistance, either during or after tonight's  
17    formal proceedings conclude. With that, I will  
18    turn over the hearing to First Lieutenant  
19    Brunkow, Environmental Manager for the 190th  
20    Air Refuelling Wing.

21           FIRST LIEUTENANT BRUNKOW: Thank you,  
22    Colonel Krueger. Good evening ladies and  
23    gentlemen and welcome to the public hearing for  
24    the Draft Environmental Impact Statement. As  
25    the Commander indicated, I am First Lieutenant

1 Jarrod Brunkow, and I serve as the  
2 environmental manager for the 190 Air  
3 Refuelling Wing. As a member of the Air  
4 Refuelling Wing and the local community I'm  
5 very interested in what happens here as well.  
6 This is an important occasion to discuss this  
7 topic and I appreciate your interest, your  
8 participation, and your comments.

9 The Draft Environmental Impact Statement  
10 evaluates impacts to 11 resources by the  
11 proposed action to include Noise, Air Quality,  
12 Safety, Biological Resources, and cultural  
13 resources. Other resources evaluated can be  
14 reviewed in the Draft Environmental Impact  
15 Statement. As a result of the draft  
16 environmental analysis, we do not expect the  
17 proposed action to have any significant impacts  
18 to any resources.

19 I will speak briefly to most of the  
20 resources I just mentioned. However, more  
21 in-depth information is provided in the Draft  
22 EIS document for all 11 resources.

23 The noise poster board shows baseline  
24 noise contours for the existing KC-135 aircraft  
25 operations and proposed noise contours from

1 KC-46A aircraft operations of Forbes. The  
2 analysis was based on 8,040 allocated flying  
3 hours for each unit, which is a conservative  
4 estimate, meaning the flying hours would most  
5 certainly be below that number for each  
6 alternative.

7 As you can see the noise contours would  
8 be reduced slightly with a reduction of 55  
9 acres off the airport-controlled property.  
10 Forbes Air National Guard Station is located in  
11 an area that does not exceed the standard for  
12 all criteria pollutants. Any increases in  
13 emissions from the proposed action would be  
14 well below the established thresholds for our  
15 area and would not be significant.

16 Under this Alternative, minor  
17 construction and renovation of facilities would  
18 be required resulting in approximately five  
19 acres of temporary soil disturbance and no new  
20 impervious surfaces. There would be no impacts  
21 to wetlands, floodplains, federally listed  
22 species, or culture resources. In addition,  
23 the Air National Guard has initiated  
24 government-to-government coordination with all  
25 federally recognized tribes affiliated with the

1 area. To date, from the responses we have  
2 received, no tribe has indicated that any  
3 traditional resources occur in the project  
4 area.

5 We look forward to input provided from  
6 the public and affected communities as we  
7 proceed through the NEPA Process. Once the  
8 requirements of NEPA are complete, the Air  
9 Force will make its final basing decision.  
10 Thank you for your attention, and I will now  
11 turn the presentation over to Ms. Anne Rowe,  
12 the National Guard Bureau Project Manager for  
13 the Environmental Impact Statement, to discuss  
14 the NEPA Process.

15 MS. ROWE: I will briefly summarize  
16 the NEPA Process. The National Environmental  
17 Policy Act, commonly referred to as NEPA, aids  
18 federal agency decision-makers in determining  
19 the future course of federal actions. It's the  
20 objective of NEPA to ensure that decision-  
21 makers have the environmental information and  
22 public input to facilitate informed decisions.

23 The goal of preparing the Environmental  
24 Impact Statement is to support sound decisions  
25 throughout the assessment of potential

1 environmental impacts, as well as involving the  
2 public in the process. The result of this  
3 analysis and other relevant factors will be  
4 considered before a decision is made by the Air  
5 Force on this proposal.

6 The Draft Environmental Impact Statement,  
7 or Draft EIS, which was made available for your  
8 reviewing at a number of public locations  
9 beginning on February 7, 2014, presents the  
10 findings and analysis of the proposed action  
11 and alternatives on the environmental criteria  
12 set forth in NEPA. Tonight's public hearing is  
13 the second of two public comment forums that  
14 provide the public an opportunity to comment on  
15 the scope and content of the Environmental  
16 Impact Statement. The first forum, called a  
17 scoping meeting, was held here and at other  
18 alternative locations in June of 2013.

19 Comments have also been solicited from  
20 local, state, and federal agencies that have  
21 jurisdiction over a particular resource, such  
22 as air and water quality. That process began  
23 with a release of the Notice of Intent to  
24 prepare an Environmental Impact Statement on  
25 May 17th, 2013, and continues today with public

1 and agency review of the Draft Environmental  
2 Impact Statement.

3 This hearing gives the potentially  
4 affected communities an opportunity to comment  
5 on the analysis that has been presented in the  
6 Draft Environmental Impact Statement.

7 The formal public comment period ends on  
8 March 24th, 2014. Following this period, oral  
9 and written comments received from both the  
10 public and government agencies will be reviewed  
11 by the Air Force and the National Guard Bureau.  
12 We will continue to accept comments throughout  
13 the NEPA Process. However, it is more  
14 difficult to give your comments the  
15 consideration they deserve as the process winds  
16 down closer to the release of the Final  
17 Environmental Impact Statement, or Final EIS.

18 After all comments on the Draft  
19 Environmental Impact Statement have been  
20 addressed, substantive comments will be  
21 reviewed and responded to in the Final EIS.  
22 The Final Environmental Impact Statement will  
23 be released to the public for a 30-day period  
24 before a record of decision is signed by the  
25 Secretary of the Air Force or their designee.



22

1 The Record of Decision is scheduled to be  
2 signed in June of 2014.

3 This concludes the explanation of both  
4 the KC-46A beddown proposal, as well as the  
5 NEPA Process. I now return the program back to  
6 our hearing officer. Thank you.

7 COLONEL SHERMAN: Does anyone have  
8 any questions? If so, we would ask that you  
9 please raise your hand. There does not appear  
10 to be any questions. So since there are no  
11 questions, I would like to begin the formal  
12 public comment portion of the hearing. I will  
13 call the speakers in the order in which they  
14 signed up, with any elected officials having  
15 the opportunity to speak first.

16 So the court reporter can accurately  
17 capture your comments, please clearly state  
18 your full name and the full name of the  
19 organization you represent, if any. Do not  
20 provide any other personal information, such as  
21 your home address or phone number. Your oral  
22 comments will be used to develop a transcript  
23 and permanent record of this meeting. Again,  
24 as a courtesy to those others who have  
25 registered to speak, please limit your comments

1 to ten minutes. This applies to all of our  
2 speakers. Keep in mind you are welcome to  
3 submit written comments and there are no page  
4 limits. The Air Force shall give equal weight  
5 to all comments, whether they are oral, or  
6 written, or both.

7           You do not have to speak for the full ten  
8 minutes. However, if you choose to speak for  
9 the full ten minutes, I will advise you when  
10 your ten minutes are almost up. Following our  
11 comment, I ask that you sit down so that I may  
12 call on the next speaker. If you think you'll  
13 have more comments than you can present in the  
14 time allotted, make the most important comments  
15 first, and then follow up by submitting the  
16 remainder of your comments in writing, if you  
17 wish.

18           Again, please understand there is no page  
19 limit to written comments. Equal weight will  
20 be given to both oral and written comments.  
21 They will all become a part of the official  
22 record and be included in the Final  
23 Environmental Impact Statement.

24           I would now like to begin. The first  
25 speaker is Mayor Larry Wolgast.

1                   MAYOR WOLGAST: Colonel Sanders (sic)  
2     and Krueger, my name is Larry Wolgast. I'm  
3     Mayor of the City of Topeka. I have a letter  
4     that we have presented that -- it is a -- it's  
5     not a long letter. Actually, we speak in  
6     support of the Greater Topeka Chamber of  
7     Commerce, who has a more detailed letter  
8     looking at the various ramifications of the  
9     relocation and the motives for it.

10                  I am writing in support of bringing the  
11     First Air National Guard KC-46A Main Operating  
12     Base with the 190th Air Refuelling Wing to the  
13     Forbes Field Air National Guard Base in Topeka,  
14     Kansas. The City of Topeka has been honored to  
15     be the home of the 190th Air Refuelling Wing,  
16     and our community has demonstrated that it is  
17     well suited to support the men and women who  
18     will be serving the new KC-46A. Topeka is home  
19     to multi-generational military families whose  
20     parents or grandparents came to Forbes Air  
21     Force Base as part of the Strategic Air  
22     Command, men and women who stayed to start a  
23     family, buy a home, join the work force. These  
24     men and women brought talent, energy and  
25     leadership skills which melted well with our

1 goals, and Topeka has prospered because of  
2 their contributions. We are a better city  
3 because of their presence, and our community  
4 remembers their role. The ties that bind us  
5 together, Topeka and Forbes, are strong, and  
6 the lines between civilian and military are  
7 indistinguishable. This indelible  
8 characteristic can't be measured, but we know  
9 it is the heart and soul of who we are as  
10 Topeka and members of the military service in  
11 this community.

12 Then I say, the Greater Topeka Chamber of  
13 Commerce has done an outstanding job providing  
14 the facts and backgrounds. I proudly endorse  
15 their comment on behalf of the City of Topeka  
16 and am especially honored to extoll the  
17 attributes of this community and its people.  
18 We are excited about the opportunities we have  
19 to offer, and I personally encourage you to  
20 consider Forbes Field Air National Guard Base  
21 as the new home for the Air National Guard  
22 KC-46A Main Operating Base. We are ready to  
23 provide support in any way possible. Thank you  
24 for your consideration. We look forward to  
25 working with you.

26

1           I want to add two other comments. First,  
2     the City of Topeka, in partnership with the  
3     Topeka Military Relations Committee, recognizes  
4     military personnel each year. Each of the  
5     services in the community selects an  
6     outstanding person in their units, and they are  
7     presented at the City Council meeting. On  
8     April 4th this year, the City is recognizing  
9     these outstanding service members and including  
10    a member of the Kansas Air National Guard. I  
11    think this speaks to the role that this  
12    community places on the military service and  
13    everything that it means to this community. I  
14    appreciated hearing the -- the environmental  
15    study and the background, and although not a  
16    personal note, I will say that I have lived in  
17    the flight line for a number of years -- and  
18    I'm speaking only for myself -- have never  
19    thought it a problem, but have thought it a  
20    very good sound to hear the planes flying over.  
21    Thank you very much.

22           COLONEL SHERMAN: Next is Mr. Bob  
23    Archer, Chairman, Shawnee County Commission.

24           CHAIRMAN ARCHER: Thank you, and  
25    welcome. Welcome everyone. I'm going to begin

1 by reading the official letter, and then I have  
2 a personal comment to make. The Shawnee County  
3 Board of Commissioners would like to encourage  
4 the U. S. Air Force to bring the First Air  
5 National Guard KC-46A Main Operating Base to  
6 the Forbes Field Air National Guard Base in  
7 Topeka. The 190th Air Refuelling Wing has  
8 called Forbes home for many years, and with  
9 leadership from the Air Force and the Air  
10 National Guard, it has become one of the most  
11 significant tanker operations in the country.  
12 Forbes Field has excellent facilities and would  
13 easily house the KC-46A and the additional  
14 personnel. In addition to the excellent  
15 facilities at Forbes Field, Topeka also offers  
16 some of the most affordable housing in the  
17 country. Topeka has first class medical  
18 facilities, an abundance of shopping throughout  
19 the community, and a wide variety of  
20 entertainment. We have first rate schools, and  
21 we are home to Washburn University, which draws  
22 many students from throughout the world, as  
23 well as our local students. We have always  
24 been proud to be the home of the Air National  
25 Guard 190th and would be equally proud to be

1 home of the new KC-46A. The airmen from the  
2 190th are active in our community, and they are  
3 highly represented by the citizens in our  
4 community. The active duty airmen and their  
5 families with the KC-46A operating base would  
6 equally be welcome and would quickly become a  
7 part of our family. The Board of County  
8 Commissioners strongly encourages you to  
9 consider Forbes Field Air National Guard Base  
10 as the new home for the Air National Guard  
11 KC-46A Main Operating Base. We stand ready to  
12 provide whatever assistance we can to assure a  
13 smooth transition and move to Topeka. Signed  
14 Bob Archer, Chair; Kevin Cook, Vice Chair; and  
15 Shelly Buhler, Member of the Commission.

16 COLONEL SHERMAN: Thank you, sir.

17 CHAIRMAN ARCHER: Now, on a personal  
18 note, as an elected official, I get a lot of  
19 different assignments and requests, and one  
20 that I got for the Visit Topeka magazine was to  
21 say in your own words what makes Topeka unique.  
22 And I submitted the following: The small town  
23 charm, friendliness and cooperation of a  
24 capital city with great education, arts and  
25 livability make Topeka one of a kind. I hope

1     you'll locate here. We'd really love to have  
2     the fueler. Thank you very much.

3                 COLONEL SHERMAN: Next we have Mr.  
4     Neil Dobler from the Chamber of Commerce. Sir.

5                 MR. DOBLER: Thank you. Thank you  
6     and welcome. My name is Neil Dobler. I  
7     represent the Chamber of Commerce in the  
8     capacity of the chairman of the board for 2014.  
9     I have some prepared comments which I will  
10    leave.

11                The Greater Topeka Chamber of Commerce  
12    strongly urges the U. S. Air Force to place the  
13    First Air National Guard KC-46A Main Operating  
14    Base with the 190th Air Refuelling Wing at  
15    Forbes Field Air National Guard Base, Topeka,  
16    Kansas. The 190th has worked diligently over  
17    the years along with the leadership from the  
18    Air Force and Air National guard to create one  
19    of the highest-quality and most cost effective  
20    tanker operations in the country. They have  
21    done that with the strong support of this  
22    community, as you have heard from the Mayor and  
23    Chairman Archer. This community has been home  
24    to Forbes Field since 1942, so we have a long,  
25    long history.



1 Forbes Field is optimally located to  
2 support the air refuelling needs of the  
3 Department of Defense, as well as having first  
4 class facilities that would require very little  
5 investment to house the KC-46A and additional  
6 active duty airmen. The existing ramp space  
7 will accommodate the larger aircraft with room  
8 to spare. Furthermore, a recent collaborative  
9 effort by the 190th Air Refuelling Wing, the  
10 City of Topeka, Shawnee County, Topeka Chamber,  
11 and local industry was successful in rezoning  
12 areas around the base that will help protect  
13 the runway from encroachment for years to come.  
14 In addition to the many positives Forbes Field  
15 has to offer, the greater Topeka community is  
16 also well positioned to meet the needs of  
17 active duty airmen and their families assigned  
18 to the base. The Topeka community has the  
19 necessary quality housing to accommodate  
20 additional personnel and their families.  
21 Topeka is consistently ranked as one of the  
22 most affordable metropolitan areas in the  
23 country for housing; additionally, in 2011,  
24 Topeka's housing was ranked as number six in  
25 affordable housing for veterans in the country

1 by Livability.com.

2 Topeka has also benefited from several  
3 large corporations that have recently built  
4 facilities near Forbes Field that provide well  
5 paying jobs that military dependents may be  
6 interested in. We have high achieving, strong  
7 K through 12 public and parochial private  
8 schools throughout the communities. These  
9 schools have innovative programs, newer  
10 facilities, and are technology rich. As Mr.  
11 Archer mentioned, Topeka is also home to  
12 Washburn University, which is just a few  
13 minutes' drive from the base and will provide  
14 airmen and their dependents with the  
15 opportunity to receive a college degree while  
16 stationed at Forbes Field. Additionally, the  
17 University of Kansas and Kansas State  
18 University are both located less than an hour  
19 from Topeka.

20 Finally, the 190th Air Refuelling Wing  
21 has built a strong and positive working  
22 relationship with the Metropolitan Topeka  
23 Airport Authority created through strong  
24 commitment to public and private partnerships.  
25 This lasting relationship gives the 190th the

1 ability to maintain a secure and low-cost  
2 installation by sharing infrastructure and cost  
3 for dual use facilities and functions. It is a  
4 true public/private partnership.

5 The Topeka community actively embraces  
6 the 190th, not only for the economic impact,  
7 but for the many intangible impacts military  
8 service has on our community. 190th personnel  
9 are locally regarded as the highest quality  
10 community members, respected by both the  
11 business community and the citizens of Topeka  
12 and Kansas. The Greater Topeka Chamber of  
13 Commerce places such importance in the 190th's  
14 presence in Topeka that a permanent position  
15 was created in 2004 on the Chamber board of  
16 directors for the 190th Commander to be assured  
17 that the needs of the 190th and their mission  
18 are always supported by the business community.

19 Additionally, the citizen airmen of the  
20 190th are our neighbors and friends. They  
21 provide community -- the community with  
22 leadership and core values instilled by the Air  
23 Force. We are proud to be the home of the Air  
24 National Guard's 190th.

25 Topeka Chamber of Commerce and the

1 community stand with the 190th Air Refuelling  
2 Wing, the Adjutant General, and the Governor of  
3 Kansas to encourage your attention to their  
4 capabilities and readiness to accept the new  
5 assignment of KC-46A tankers. We are always  
6 ready to provide assistance and partnership  
7 with the 190th and express our desire to the  
8 new Air National Guard KC-46A Main Operating  
9 Base at Forbes Field Air National Guard Base,  
10 Topeka, Kansas.

11 This letter has been signed by the board  
12 of directors, and I'll leave that with you.  
13 And I appreciate your time. Thank you very  
14 much.

15 COLONEL SHERMAN: Our next speaker is  
16 Gina Pensick (spelled phonetically).

17 MS. PENSICK: I'm simply going to  
18 submit written comments, ma'am.

19 COLONEL SHERMAN: Thank you. And Mr.  
20 Allan Towle. Sir.

21 MR. TOWLE: I apologize. I did not  
22 write my comment. Most of what I have to say  
23 has already been said, but I think it's  
24 important -- I apologize. I am Allan Towle,  
25 president of Fidelity State Bank & Trust

1 Company and chairman of the board of Go Topeka.  
2 Most of what I've already said has been said by  
3 the distinguished gentlemen that got to speak  
4 ahead of me. And I appreciate them going  
5 through all of that.

6 I do want to add that the Topeka business  
7 community -- and I see this in my work life,  
8 and I see this in being involved in Go Topeka  
9 -- is very supportive of the military, very  
10 supportive of the 190th. The 190th adds great  
11 economic value to Topeka, and I believe Topeka  
12 adds great economic value to the 190th. One of  
13 the advantages of bringing the aircraft here is  
14 that we do have a very large Air Force base  
15 runway so it can accommodate those. The  
16 facilities here and the infrastructure here are  
17 already in place, with minor adjustments for  
18 the military to be able to use our facilities  
19 here in Topeka. Our community has very strong  
20 support. We've got the housing, we've got the  
21 schools, we've got some great opportunities for  
22 education and great opportunities for jobs for  
23 the family members of the military that would  
24 be coming to Topeka should this happen. So it  
25 would be a great opportunity for the military

1 as well to come to Topeka with these additional  
2 aircraft.

3 A few years ago my son joined the Marine  
4 Reserves; and with that, I have had an  
5 opportunity to get a little more first hand  
6 knowledge and observation, I should probably  
7 say, of how the public supports the military in  
8 Topeka. And it is just outstanding when he  
9 goes places, the reactions that he gets because  
10 of his service to our country. And we  
11 certainly appreciate your service to our  
12 country and everything that you have done for  
13 us through today. We certainly encourage you  
14 to bring the KC-46A here to Topeka. Thank you  
15 very much.

16 COLONEL SHERMAN: You're welcome,  
17 sir. This evening's goal was to provide you  
18 with open communication and accurate  
19 information to ensure your informed  
20 participation in the NEPA Process. I hope that  
21 we have achieved that goal. Please feel free  
22 to visit the information booths and ask any  
23 additional questions you may have regarding  
24 this proposed action. You have an opportunity  
25 during the formal comment period ending March

36

1 24th, 2014, to provide written comments.

2 Please stop by the registration booth to get

3 any additional materials you may need.

4 Thank you and have a good evening.

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1 C E R T I F I C A T E

2 STATE OF KANSAS )  
3 ) ss:  
4 COUNTY OF SHAWNEE )

5 I, Roxana S. Montgomery, a Certified  
6 Shorthand Reporter in and for the State of  
7 Kansas, duly commissioned as such by the  
8 Supreme Court of the State of Kansas, do hereby  
9 certify that I was present at and reported in  
10 shorthand the foregoing proceedings had at the  
11 aforementioned time and place; further that the  
12 foregoing 35 pages is a true and correct  
13 transcript of my notes requested transcribed.

14 IN WITNESS WHEREOF, I have hereunto  
15 affixed my Official Seal this \_\_\_\_\_ day of  
16 \_\_\_\_\_, 2014.

17

18

19

20 Roxana S. Montgomery  
21 CERTIFIED SHORTHAND REPORTER  
22 Registration No. 1409

23

24

25



Page 1

AIR NATIONAL GUARD PUBLIC HEARING.....

EIS HEARING PROCEEDINGS.....

IN RE: Public hearing for the Draft  
Environmental Impact Statement for the  
Second Main Operating Base Beddown of  
the KC-46A Tanker Aircraft....

H E L D B E F O R E:

Colonel William Muldoon  
Captain April Doolittle  
Colonel Robert Meyer  
Captain Robert Mendez  
Anne Rowe, Project Manager

H E L D O N: Tuesday, March 4, 2014

R E P O R T E D B Y:

PATRICIA A. TERRACCIANO, Certified Court  
Reporter (License No. 1158) and Notary Public of  
New Jersey, on the above date, commencing at five  
o'clock p.m., at the offices of Plumbsted Fire  
District #1 Fire Station, 59 Main Street, New  
Egypt, New Jersey.

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1 EIS Hearing Proceedings:

2 CAPTAIN APRIL DOOLITTLE, (the  
3 BASE Public Affairs Officer): Good  
4 evening ladies and gentlemen, and welcome  
5 to the public hearing for the Draft  
6 Environmental Impact Statement for the  
7 Second Main Operating Base Beddown of the  
8 KC-46A Tanker Aircraft. I am Captain  
9 April Doolittle with the 108th Wing  
10 Public Affairs Office, located in central  
11 New Jersey.

12 Please enjoy the refreshments  
13 provided. Restrooms are outside in the  
14 lobby, and smoking in the facility is  
15 prohibited.

16 Before starting the formal  
17 portion of tonight's hearing, I ask that  
18 cell phones be turned off or placed in  
19 the silent mode. During the proceedings,  
20 please do not interrupt the speakers and  
21 please be respectful to those providing  
22 oral comments. We will do our best to  
23 give everyone an opportunity to speak, in  
24 the time we have.

25 Colonel William Muldoon (Judge

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Page 3

1 Advocate) will now begin the formal  
2 portion of tonight's hearing.

3 COLONEL WILLIAM MULDOON (Judge  
4 Advocate): Good evening and thank you  
5 Captain Doolittle. I am Judge Colonel  
6 Bill Muldoon and I am a Chief Regional  
7 Military Judge of the United States Air  
8 Force from Nellis Air Force Base, Nevada.  
9 I'd like to make clear from the outset  
10 that I'm here in my capacity as a federal  
11 judge solely to act as a moderator in  
12 this hearing. The United States Trial  
13 Judiciary is an independent organization.  
14 I do not work for, or with, anyone in  
15 this room. I am not a member of this  
16 command or assigned to this installation.  
17 I report directly to the Chief Trial  
18 Judge of the United States Air Force and  
19 to the Judge Advocate General of the Air  
20 Force. I have had no involvement with  
21 the preparation of this proposed action  
22 or the Environmental Impact Statement. I  
23 have not rendered legal advice or  
24 assistance with respect to this action.  
25 I'm here tonight to serve as an

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1 independent public hearing officer  
2 regarding the Draft Environmental Impact  
3 Statement. I am responsible for  
4 providing everyone an opportunity to  
5 comment tonight on the proposed action,  
6 alternatives, and associated  
7 environmental analysis.

8 This public hearing provides  
9 you with the formal opportunity for  
10 comment. I do not make any  
11 recommendation or decision on whether the  
12 proposed project should be continued,  
13 modified, or abandoned or how the  
14 Environmental Impact Statement should be  
15 prepared. Therefore, during the public  
16 comment portion of this hearing I urge  
17 you to direct your comments to the  
18 individuals on our panel.

19 The purpose of this public  
20 hearing is to provide you with an  
21 opportunity to comment on the findings of  
22 the Draft Environmental Impact Statement.  
23 More importantly, this hearing is a  
24 formal opportunity for you to get  
25 involved in the NEPA Process.

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1                   This hearing is scheduled to  
2                   conclude at 8:00 p.m., but if necessary,  
3                   will continue until all comments have  
4                   been received. This formal session may  
5                   end before 8:00 p.m., if there are no  
6                   more comments. However, the overall  
7                   hearing, including materials to be viewed  
8                   and discussion with team members  
9                   individually, will continue until 8:00  
10                  p.m., unless all interested parties have  
11                  left the meeting.

12                  If following the presentation  
13                  any members of the audience have  
14                  questions regarding clarification of any  
15                  points you may not have understood, you  
16                  may fill out a question card, which can  
17                  be found at the registration desk or on  
18                  several tables scattered throughout the  
19                  room, or you may raise your hand now and  
20                  someone will bring a card to you.

21                  Once you have filled out your  
22                  question on the card, please raise your  
23                  hand again and one of our staff will  
24                  collect it from you. Only questions  
25                  regarding clarification of the topics

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1           presented will be entertained. General  
2           comments on the action will not be read  
3           by our panel, but you may present your  
4           comment orally later in this evening or  
5           submit it on one of the comment cards  
6           found throughout the room.

7                       Once questions have been  
8           answered, members of the audience who  
9           checked the box on their registration  
10          cards indicating their desire to provide  
11          oral comments will be asked to come  
12          forward.

13                      Registration cards were  
14          available at the registration table as  
15          you came in. If you have not filled out  
16          a card or indicated your desire to speak  
17          and wish to do so, please raise your hand  
18          and a card will be provided to you now.

19                      In addition, there are  
20          materials at the door describing the  
21          official Air National Guard proposal, the  
22          description of the proposed action and  
23          alternatives, and information on  
24          locations where you can review the draft  
25          Environmental Impact Statement after

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1           tonight, if you have not already done so.

2                   To ensure that all interested  
3           citizens have an opportunity to speak, I  
4           will limit the comments to ten minutes  
5           per person. If time allows after  
6           everyone has had an opportunity to  
7           provide their comments, you may have more  
8           time. You will only be allowed to  
9           comment when your name is called.  
10          Elected officials and individuals  
11          representing organizations will be called  
12          upon first.

13                  A court reporter is recording  
14          this proceeding for the record. We will  
15          take a ten-minute break every hour to  
16          allow the court reporter to take a break.

17                  As mentioned earlier,  
18          restrooms are located to the left down  
19          the hallway that is marked with the exit  
20          sign, and refreshments can be found near  
21          the check-in desk.

22                  Throughout this hearing, I ask  
23          that you keep in mind that this public  
24          hearing is not a debate, or any type of  
25          vote on the Draft Environmental Impact

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1 Statement, nor is it primarily designed  
2 as a question-and-answer session,  
3 although legitimate, clarifying questions  
4 may be asked.

5 At the conclusion of this  
6 hearing you may discuss the findings of  
7 the Draft Environmental Impact Statement  
8 in greater detail with the staff members  
9 from the 108th Wing, National Guard  
10 Bureau, and the consultant's technical  
11 representatives.

12 If you do not wish to provide  
13 oral comments, written comments will be  
14 accepted and will be given equal  
15 consideration. Even if you do make an  
16 oral statement, you are welcome to  
17 provide a written statement to reaffirm  
18 the comments you made and any additional  
19 comments you would like to make.

20 Written comments should be  
21 sent to the National Guard Bureau at the  
22 address printed on the comment form that  
23 you filed out, or on the website. The  
24 address is also printed on the comment  
25 sheets.

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1 All relevant, substantive  
2 comments will be included in the  
3 administrative record and will be  
4 addressed in the Final Environmental  
5 Impact Statement. The formal comment  
6 period for the Draft Environmental Impact  
7 Statement ends on March 24, 2014. It is  
8 very important for you to realize that  
9 the New Jersey Air National Guard and the  
10 National Guard Bureau will be open and  
11 responsive to your comments and concerns  
12 throughout the NEPA process.

13 It is a requirement to inform  
14 you that under the Privacy Act of 1974,  
15 your name, address and comments, if  
16 provided during this NEPA process, will  
17 be:

18 > Used to compile mailing  
19 lists for sending project reports,  
20 brochures, and other information  
21 concerning the Environmental Impact  
22 Statement to those individuals and groups  
23 who might be interested.

24 > Forwarded to federal, state  
25 and local agencies, and elected

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1 officials.

2 > The addresses of private  
3 individuals submitting comments will NOT,  
4 repeat, "will NOT," be published in  
5 documents released to the public.

6 Failure to provide the  
7 information requested would prevent  
8 delivery of documents and notification of  
9 further developments. However, documents  
10 are available on the project website and  
11 in select libraries, with locations  
12 published in local newspapers.

13 Now, before we proceed with  
14 the presentation, if you have not  
15 reviewed a copy of the Draft  
16 Environmental Impact Statement, copies  
17 are available for you to review while in  
18 attendance at this hearing at each of the  
19 information booths.

20 Further, you may pick up a CD  
21 with the document on it at the check-in  
22 desk. There is also a list of locations  
23 where the Environmental Impact Statement  
24 is provided for public review after this  
25 meeting in the informational handouts.

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Page 11

1           If you did not receive other  
2           informational materials that were  
3           available at the entrance, please raise  
4           your hand and someone will provide them  
5           to you.

6                     At this point, I will turn  
7           this over to Colonel Meyer, the Commander  
8           for the 108th air refueling Wing.

9                     COLONEL MEYER: Thank you, Your  
10          Honor. Good evening, my name is Colonel  
11          Bob Meyer, and I am the Wing Commander  
12          for the 108th Air Refueling Wing, New  
13          Jersey Air National Guard, at Joint Base  
14          McGuire-Dix-Lakehurst.

15                    On behalf of the New Jersey  
16          Air National Guard, I want to welcome all  
17          of you to this important public hearing  
18          regarding the Draft Environmental Impact  
19          Statement for the proposed beddown of the  
20          KC-46A tanker aircraft.

21                    It is our goal this evening to  
22          provide you with information about the  
23          proposed aircraft beddown and the  
24          National Environmental Policy Act,  
25          commonly referred to as NEPA, and to

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1           ensure your maximum participation and  
2           understanding of this process.

3                       I would like to introduce you  
4           to individuals who are here this evening  
5           to assist in answering questions about  
6           the aircraft conversion and to facilitate  
7           your participation in commenting on the  
8           findings of the Draft Environmental  
9           Impact Statement.

10                    You have already met Colonel  
11           William Muldoon from Headquarters Air  
12           Force. He will be presiding over this  
13           evening's hearing. Next we have Captain  
14           Robert Mendez, the 108th Wing's  
15           Environmental Manager who will provide  
16           you with an overview of the proposed  
17           action and alternatives; and Anne Rowe,  
18           from the National Guard Bureau, who will  
19           be explaining some key considerations  
20           regarding the National Environmental  
21           Policy Act.

22                    We also have a number of other  
23           individuals who have been involved in the  
24           development of the Environmental Impact  
25           Statement. They are from the New Jersey

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1 International Guard, the National Guard  
2 Bureau and Cardno TEC, our environmental  
3 consultants. They will be available  
4 after the current formal session to  
5 answer questions and to help facilitate  
6 this process. You will find that any  
7 member in uniform or with an EIS name tag  
8 can either answer your questions or  
9 direct you to the right individual to  
10 answer your questions.

11 The greater central New Jersey  
12 community is important to the 108th Wing,  
13 and community input is valuable to the  
14 environmental analysis. Joint Base  
15 McGuire-Dix-Lakehurst is the current home  
16 of the 108th Wing. Many of our current,  
17 as well as retired members live in the  
18 area. We are part of this community.

19 Many of you have been  
20 consistently supportive of the military  
21 and of the 108th Wing. This community  
22 helped foster the development of the New  
23 Jersey Air National Guard as well as the  
24 108th Wing over many years. This support  
25 is and has been deeply appreciated. Like

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1       you, our members live and work in this  
2       community and care deeply about its  
3       future. This is home to all of us.

4               The proposed action is for the  
5       Air Force to replace a portion of the  
6       existing KC-135 aerial refueling fleet  
7       with the KC-46A, which will be a new  
8       aircraft to the Air Force's fleet. As  
9       such, the Air Force plans to identify  
10      locations for the beddown of a formal  
11      training unit (also known as "FTU") and  
12      the First Main Operating Base (also known  
13      as "MOB 1"), which will both be led by  
14      active duty units. This has been the  
15      subject of a separate Environmental  
16      Impact Statement and is NOT a part of  
17      this discussion this evening.

18             The Air Force will also  
19      beddown the KC-46A at a Second Main  
20      Operating Base (also known as "MOB 2"),  
21      which will be led by an International  
22      Guard unit. This hearing is regarding  
23      the Second MOB, Main Operating Base  
24      beddown only, as the FTU and MOB 1  
25      beddown are the subject of a separate

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1 action.

2 The National Guard Bureau has  
3 prepared this Draft Environmental Impact  
4 Statement to analyze the potential  
5 impacts of the MOB 2 KC-46A beddown. The  
6 Draft Environmental Impact Statement  
7 analyzes potential environmental  
8 consequences that could result from the  
9 proposed beddown of 12 KC-46A aircraft at  
10 any of five alternative International  
11 Guard installations, including:

12 > Forbes Air National Guard  
13 Station, Kansas;.

14 > Joint Base  
15 McGuire-Dix-Lakehurst, New Jersey;.

16 > Pease Air National Guard  
17 Station, New Hampshire;.

18 > Pittsburgh Air National  
19 Guard Station, Pennsylvania; and.

20 > Rickenbacker Air National  
21 Guard Station, Ohio.

22 The no-action alternative is  
23 required by the National Environmental  
24 Policy Act, and will be evaluated also to  
25 provide a baseline for decision-makers.

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1           The no-action alternative evaluates the  
2           environmental consequences of not basing  
3           the KC-46A aircraft at any installation.  
4           Under the no-action alternative, no  
5           installation would be selected to host  
6           the KC-46A for the Second Main Operating  
7           Base.

8                       In 2013, the Secretary of the  
9           Air Force announced Pease International  
10          Guard Station as the preferred  
11          alternative for the KC-46A Second Main  
12          Operating Base. The United States Air  
13          Force selected Pease Air National Guard  
14          Station based on an operational analysis,  
15          results of site surveys, and military  
16          judgment factors. We would like to  
17          emphasize that although the preferred  
18          alternative for the beddown has been  
19          announced, no formal decision has been  
20          made on the basing of the KC-46A aircraft  
21          currently under analysis in this draft  
22          EIS. Until a final decision is made by  
23          the Secretary of the Air Force, all  
24          alternatives are still under  
25          consideration and are treated equally.

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1                   As shown on the poster boards,  
2           as a result of the Proposed Action, there  
3           would be a change to the type of aircraft  
4           based at the selected installation; a  
5           change to the mix of aircraft using  
6           associated air space; changes to staffing  
7           and manpower at the selected location;  
8           changes to the number of airfield  
9           operations; as well as minor required  
10          construction, building renovation, and  
11          facility demolition. There would be no  
12          new or modified airspace required to  
13          support this action. The proposed  
14          aircraft beddown is estimated to begin in  
15          late 2017 or 2018 for the National Guard  
16          Bureau.

17                   If Joint Base  
18          McGuire-Dix-Lakehurst is selected for the  
19          MOB 2 KC-46A beddown, 8 KC-135 aircraft  
20          would be replaced by 12 KC-46A aircraft,  
21          personnel would increase by 287  
22          individuals, total airfield operations  
23          would increase by 15 percent, and the  
24          acreage off airport-controlled property  
25          within the 65 decibel Day-Night Average

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1           Sound Level noise contour -- there is a  
2           mouthful -- would increase by 419 acres.

3                       If Joint Base  
4           McGuire-Dix-Lakehurst is not chosen for  
5           the beddown of the KC-46A Tanker  
6           Aircraft, the existing KC-135 will remain  
7           at the base for the foreseeable future.

8                       Again, I want to thank you for  
9           your attendance and your interest this  
10          evening. Please let me know if I can be  
11          of further assistance, either during or  
12          after tonight's formal proceedings  
13          conclude. With that, I will turn over  
14          the hearing to Captain Mendez,  
15          Environmental Manager for the 108th Wing.  
16          Thank you.

17                      CAPTAIN MENDEZ: Thank you,  
18          Colonel Meyer. Good evening ladies and  
19          gentlemen and welcome to the public  
20          hearing for the Draft Environmental  
21          Impact Statement. As the Commander  
22          indicate, I am Captain Robert Mendez, and  
23          I serve as the environmental manager for  
24          the 108th Wing. As a member of the unit  
25          and of the local community I am very

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1 interested in what happens here as well.  
2 This is an important occasion in which to  
3 discuss this topic and I appreciate your  
4 interest, your participation, and your  
5 comments.

6 The Draft Environmental Impact  
7 Statement evaluates impacts to eleven  
8 resources by the proposed action to  
9 include Noise, Air Quality, Safety,  
10 Biological Resources, and Cultural  
11 Resources. Other Resources evaluated can  
12 be reviewed in the Draft Environmental  
13 Impact Statement. As a result of the  
14 draft environmental analysis, we do not  
15 expect the proposed action to have any  
16 significant impacts to any resources.

17 I will speak briefly to most  
18 of the resources I just mentioned;  
19 however, more in-depth information is  
20 provided in the Draft EIS document for  
21 all eleven resources.

22 The noise poster board shows  
23 baseline noise contours from existing  
24 KC-135 aircraft operations and proposed  
25 noise contours from KC-46A aircraft

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1 operations at Joint Base  
2 McGuire-Dix-Lakehurst. The analysis was  
3 based on 8,040 allocated flying hours for  
4 each unit, which is a conservative  
5 estimate, meaning that flying hours would  
6 most certainly be below that number for  
7 each alternative.

8 As you can see the noise  
9 contours would increase with an addition  
10 of 419 acres off airport-controlled  
11 property affected. Impacts to Air  
12 Quality from proposed operational  
13 emissions would be less than significant  
14 for all criteria pollutants, except  
15 nitrogen oxides, which would be above the  
16 de minimis threshold of 100 tons per  
17 year. A conformity determination is  
18 being prepared to address this and will  
19 be completed prior to finalizing the  
20 Environmental Impact Statement. The  
21 National Guard Bureau is coordinating  
22 with Joint Base McGuire-Dix-Lakehurst and  
23 the New Jersey Department of  
24 Environmental Quality on the effort.

25 Under this Alternative minor

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1 construction and renovation of facilities  
2 would be required resulting in  
3 approximately 4.7 acres of temporary soil  
4 disturbance and 2.4 acres of new  
5 impervious surface. There would be no  
6 impacts to wetlands, floodplains, or  
7 federally listed species. In addition,  
8 the Air National Guard has initiated  
9 government-to-government coordination  
10 with all federally recognized tribes  
11 affiliated with the area. To date, from  
12 the responses we have received, no tribe  
13 has indicated that any traditional  
14 resources occur in the project area.

15 We look forward to input  
16 provided from the public and affected  
17 communities as we proceed through the  
18 NEPA process. Once the requirements of  
19 NEPA are complete, the Air Force will  
20 make its final basing decision.

21 Thank you for your attention,  
22 and I will now turn the presentation over  
23 to Ms. Anne Rowe, the National Guard  
24 Bureau Project Manager for the  
25 Environmental Impact Statement to discuss

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1 the NEPA process.

2 ANNE ROWE: Thank you, Captain  
3 Mendez.

4 I will briefly summarize the  
5 NEPA process. The National Environmental  
6 Policy Act, commonly referred to as NEPA,  
7 aids Federal agency decision-makers in  
8 determining the future course of federal  
9 actions. It is the objective of NEPA to  
10 ensure that decision-makers have the  
11 environmental information and public  
12 input to facilitate informed decisions.

13 The goal of preparing the  
14 Environmental Impact Statement is to  
15 support sound decisions through the  
16 assessment of potential environmental  
17 impacts, as well as involving the public  
18 in the process. The result of this  
19 analysis and other relevant factors will  
20 be considered before a decision is made  
21 by the Air Force on this proposal.

22 The Draft Environmental Impact  
23 Statement, or Draft EIS, which was made  
24 available for your viewing at a number of  
25 public locations beginning on February

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1 7th, 2014, presents the findings and  
2 analysis of the proposed action and  
3 alternatives on environmental criteria  
4 set forth by NEPA.

5 Tonight's public hearing is  
6 the second of two public comment forums  
7 that provide the public an opportunity to  
8 comment on the scope and content of the  
9 Environmental Impact Statement. The  
10 first forum, called a scoping meeting,  
11 was held at here and at the other  
12 alternative locations in June 2013.

13 Comments have also been  
14 solicited from local, state and Federal  
15 agencies that have jurisdiction over  
16 particular resources, such as air and  
17 water quality. That process began with  
18 the release of the Notice of Intent to  
19 prepare an Environmental Impact Statement  
20 on May 17, 2013, and continues today with  
21 public and agency review of the Draft  
22 Environmental Impact Statement.

23 This hearing gives the  
24 potentially affected communities an  
25 opportunity to comment on the analyses

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1           that have been presented in the Draft  
2           Environmental Impact Statement.

3                       The formal public comment  
4           period ends on March 24th, 2014.  
5           Following this period, oral and written  
6           comments received from both the public  
7           and government agencies will be reviewed  
8           by the Air Force and the National Guard  
9           Bureau. We will continue to accept  
10          comments throughout the NEPA process.  
11          However, it is more difficult to give  
12          your comments the consideration they  
13          deserve as the process winds down closer  
14          to the release of the Final Environmental  
15          Impact Statement, or Final EIS.

16                     After all comments on the  
17          Draft Environmental Impact Statement have  
18          been addressed, substantive comments will  
19          be reviewed and responded to in the final  
20          EIS. The Final Environmental Impact  
21          Statement will be released to the public  
22          for a 30-day period before a record of  
23          decision is signed by the Secretary of  
24          the Air Force or their designee. The  
25          Record Of Decision is scheduled to be

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1 signed in June 2014.

2 This concludes the explanation  
3 of both the KC-46A beddown proposal, as  
4 well as the NEPA process.

5 I now return the program back  
6 to our hearing officer. Thank you.

7 \* \* \*

8 COLONEL WILLIAM MULDOON:  
9 Thank you, Ms. Rowe.

10 My records show we don't have  
11 any written questions from anyone  
12 attending.

13 Did anyone attending have any  
14 questions for the panel to clarify  
15 anything before we proceeded? And I am  
16 not seeing any.

17 Also, I would don't have any  
18 note of anyone wanting to make a public  
19 comment.

20 At this point I will offer an  
21 opportunity if anyone wanted to make a  
22 comment.

23 AUDIENCE MEMBER: Can I ask  
24 questions about the table?

25 COLONEL WILLIAM MULDOON:

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1           Certainly, yes you may.

2                   AUDIENCE MEMBER: So I  
3           understand, there are eight KC-135s at  
4           McGuire, at McGuire-Dix-Lakehurst, and  
5           there is eight up at Pease?

6                   COLONEL: I believe Pease has  
7           12 currently.

8                   AUDIENCE MEMBER: So, they're  
9           going to keep four of them?

10                  COLONEL: I believe they  
11           relinquished their entire KC-135 fleet  
12           and that will be replaced with KC-46A.

13                  MS. ROWE: It will be replaced  
14           with 12 -- it would lose all their  
15           KC-135s and be replaced with 12 KC-46s.

16                  AUDIENCE MEMBER: Does McGuire  
17           -- How many are, KC-135s are at McGuire?

18                  COLONEL: We have, we possess  
19           eight.

20                  AUDIENCE MEMBER: And you'd  
21           give all of those up and get --

22                  COLONEL: And get 12 of these.

23                  AUDIENCE MEMBER: Okay. Now,  
24           this, the table doesn't reflect your  
25           KC-10 assets. So I mean, I am looking at

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1           this table as the 135s only.

2                   The KC-10s add a lot more  
3           capability to joint based  
4           McGuire-Dix-Lakehurst.

5                   COLONEL: It is another air  
6           refueling asset that we have on the main  
7           installation which is operated primarily  
8           by the active component in conjunction  
9           with the 514, which is the Air Force  
10          Reserve.

11                   So I mean across the joint  
12          installation we have a robust air  
13          re-fueling fleet, but it is also made up  
14          of you know, us, International Guard  
15          asset as well as the 514 reserve and 305.

16                   AUDIENCE MEMBER: Do they have  
17          any active duty up at Pease?

18                   COLONEL: They have an  
19          associate unit up there as well. They  
20          do. They have what they refer to as a  
21          classic association.

22                   AUDIENCE MEMBER: And they  
23          have separate aircraft for that?

24                   COLONEL: They share the  
25          airplane. So they all operate that same

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1           12 135s.

2                   AUDIENCE MEMBER: I see. The,  
3           as far as the modification, it appears as  
4           if the modifications at Pease are almost  
5           identical to those at  
6           McGuire-Dix-Lakehurst.

7                   So, I mean I don't see a  
8           difference.

9                   Is there a reason that you  
10          would need to add 287 people at  
11          McGuire-Dix-Lakehurst versus 187 up at  
12          Pease?

13                  Why are -- any idea why there  
14          might -- and I don't expect the answer to  
15          this question. Any idea why you might  
16          have additional people at Lakehurst?

17                  COLONEL: Do you have the  
18          answer to that one? Do you want to take  
19          that one?

20                  MS. ROWE: Because Joint based  
21          McGuire doesn't have an active associate  
22          right now so that would include an active  
23          associate at Joint Base McGuire.

24                  AUDIENCE MEMBER: I don't know  
25          what that means. That means that, that

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Page 29

1           you would -- those additional people  
2           would be supporting an active duty  
3           component, is that what that means, or?

4                   MS. ROWE: I'm sorry.

5                   AUDIENCE MEMBER: I am not sure  
6           I understand what an associate -- I mean  
7           I understand what that means but why, why  
8           does that impact the number of people?  
9           That is the bottom --

10                  MS. ROWE: Because -- Right.  
11          And Pease has -- Pease has, Pease is the,  
12          only one of the five that has the active  
13          associate right now. So, they are, they  
14          already have an active associate there.

15                  AUDIENCE MEMBER: And to  
16          create one here requires additional  
17          people?

18                  MS. ROWE: Yes, sir. Do you  
19          want to explain what an active associate  
20          is?

21                  COLONEL: It would be a  
22          scenario where you have one squadron that  
23          is lead by the International Guard; then  
24          you would have an active duty squadron  
25          that associates with that International

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1 Guard, so...

2 AUDIENCE MEMBER: I see.

3 COLONEL: It is a net gain of  
4 manpower to operate the 135R models that  
5 we currently have.

6 AUDIENCE MEMBER: Just so I  
7 understand for the record here, let me  
8 say. So, the fuel supply for  
9 McGuire-Dix-Lakehurst comes by a secure  
10 underground pipe?

11 COLONEL: That is correct.

12 AUDIENCE MEMBER: And the  
13 supply from Pease comes from a -- it  
14 gets, I guess barged in, and then it gets  
15 trucked to the base?

16 COLONEL: I have to verify that  
17 one. It may be best to add Anne on this  
18 one, but it is my understanding that it  
19 is by tanker truck.

20 MS. ROWE: Sir, I will just  
21 stop you right now. I appreciate your  
22 question. We can clarify your question  
23 after the formal part.

24 If you would like to get up  
25 and make a statement about that --

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1 AUDIENCE MEMBER: No, you've  
2 answered all my questions, thank you.

3 MS. ROWE: That is fine. I  
4 didn't want to keep going back and forth,  
5 but certainly we can clarify any  
6 questions that you have once we're done  
7 this portion of it.

8 But feel free to get up and  
9 speak. And also, yes, and how, how they  
10 fueled it, I don't know how they fueled  
11 it. It was part of this environmental  
12 analysis. So, it is not relevant to the  
13 Environment Impact Statement.

14 AUDIENCE MEMBER: I  
15 understand. Thank you.

16 MS. ROWE: Yes, sir.

17 COLONEL WILLIAM MULDOON: Did  
18 anyone else have any questions or  
19 clarification?

20 What I will do, I will take a  
21 brief ten-minute break, to see, if based  
22 on that, anyone wanted to make a public  
23 comment. And then we will come back on  
24 the record to take any public comments if  
25 anyone had to make them.

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1                   If you have not provided a  
2           card with your question or a card with  
3           your desire to make a comment to our  
4           staff yet, now would be the time to do  
5           that.

6                   And then I will alert everyone  
7           when it is time to reconvene the hearing.

8                   As I stated before,  
9           refreshments are available for your  
10          enjoyment. And restrooms are down the  
11          corridor with the exit sign. And we'll  
12          take a ten-minute break.

13                   \* \* \*

14                   (Break taken.)

15                   \* \* \*

16                   COLONEL WILLIAM MULDOON: This  
17          hearing is reconvened.

18                   We still have not received any  
19          written questions and there is no one  
20          listed on the sign-in sheets who wanted  
21          to speak and make a formal public  
22          comment.

23                   But we are going to begin the  
24          public, formal public comment portion of  
25          the hearing.

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1                   If there is anyone who didn't  
2                   sign up and would like to make a formal  
3                   public comment, this would be the time to  
4                   do that.

5                   Not seeing anyone -- I remind  
6                   everyone in attendance that you can still  
7                   make written comments as described before  
8                   and as in the handout materials.

9                   Equal weight will be given to  
10                  both oral and written comments in this  
11                  process. They will all become part of  
12                  the official record and will be included  
13                  in the Final Environmental Impact  
14                  Statement.

15                  This evening's goal was to  
16                  provide you with open communication and  
17                  accurate information to ensure your  
18                  informed participation in the NEPA  
19                  process.

20                  I hope that we have achieved  
21                  that goal. Please feel free to visit the  
22                  information booth and ask any additional  
23                  questions that you may have regarding  
24                  this proposed action. You have an  
25                  opportunity during the formal comment

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1           period ending March 24, 2014, to provide  
2           written comments.

3                       Please stop by the  
4           registration booth to get any additional  
5           materials you may need. Thank you and  
6           have a good evening.

7                               \* \* \*

8                       (WHEREUPON, the deposition is  
9           hereby concluded at 6:47 p.m.)

10                           \* \* \*

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C E R T I F I C a T I O N

I, Patricia A. Terracciano, Certified  
Shorthand Reporter and Notary Public duly and  
qualified in and for the State of New Jersey, do  
hereby certify that the foregoing transcript is a  
true and correct transcript of my original  
stenographic notes.

I further certify that I am neither  
attorney or counsel for, nor related to or  
employed by any of the parties to the action in  
which this deposition is taken; and furthermore,  
that I am not a relative or employee of any  
attorney or counsel employed by the parties hereto  
or financially interested in the action.

\_\_\_\_\_  
PATRICIA A. TERRACCIANO  
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A	Affairs	analysis
<b>abandoned</b>	2:3,10	4:7 13:14 16:14,21 19:14 20:2
4:13	<b>affiliated</b>	22:19 23:2 31:12
<b>accept</b>	21:11	<b>analyze</b>
24:9	<b>agencies</b>	15:4
<b>accepted</b>	9:25 23:15 24:7	<b>analyzes</b>
8:14	<b>agency</b>	15:7
<b>accurate</b>	22:7 23:21	<b>Anne</b>
33:17	<b>aircraft</b>	1:9 12:17 21:23 22:2 30:17
<b>achieved</b>	11:20	<b>announced</b>
33:20	<b>aids</b>	16:9,19
<b>acreage</b>	22:7	<b>answer</b>
17:24	<b>air</b>	13:5,8,10 28:14,18
<b>acres</b>	1:1 3:7,8,18,19 6:21 9:9 11:8,12	<b>answered</b>
18:2 20:10 21:3,4	11:13,16 12:11 13:23 14:5,8,9	6:8 31:2
<b>act</b>	14:18 15:12,16,18,20 16:9,12	<b>answering</b>
3:11 9:14 11:24 12:21 15:24	16:13,23 17:6 19:9 20:11 21:8	12:5
22:6	21:19 22:21 23:16 24:8,24	<b>appears</b>
<b>action</b>	27:5,9,12	28:3
3:21,24 4:5 6:2,22 12:17 14:4	<b>aircraft</b>	<b>appreciate</b>
15:1 17:2,13 19:8,15 23:2	1:4 2:8 11:23 12:6 14:8 15:9	19:3 30:21
33:24 35:14,18	16:3,20 17:3,5,14,19,20 18:6	<b>appreciated</b>
<b>actions</b>	19:24,25 27:23	13:25
22:9	<b>airfield</b>	<b>approximately</b>
<b>active</b>	17:8,22	21:3
14:14 27:8,17 28:21,22 29:2,12	<b>airplane</b>	<b>April</b>
29:14,19,24	27:25	1:7 2:2,9
<b>add</b>	<b>airport-controlled</b>	<b>area</b>
27:2 28:10 30:17	17:24 20:10	13:18 21:11,14
<b>addition</b>	<b>airspace</b>	<b>asked</b>
6:19 20:9 21:7	17:12	6:11 8:4
<b>additional</b>	<b>alert</b>	<b>assessment</b>
8:18 28:16 29:1,16 33:22 34:4	32:6	22:16
<b>address</b>	<b>allocated</b>	<b>asset</b>
8:22,24 9:15 20:18	20:3	27:6,15
<b>addressed</b>	<b>allow</b>	<b>assets</b>
9:4 24:18	7:16	26:25
<b>addresses</b>	<b>allowed</b>	<b>assigned</b>
10:2	7:8	3:16
<b>administrative</b>	<b>allows</b>	<b>assist</b>
9:3	7:5	12:5
<b>advice</b>	<b>alternative</b>	<b>assistance</b>
3:23	15:10,22 16:1,4,11,18 20:7,25	3:24 18:11
<b>Advocate</b>	23:12	<b>associate</b>
3:1,4,19	<b>alternatives</b>	27:19 28:21,23 29:6,13,14,19
<b>aerial</b>	4:6 6:23 12:17 16:24 23:3	<b>associated</b>
14:6	<b>analyses</b>	4:6 17:6
	23:25	<b>associates</b>

National Court Reporters, Inc 888.800.9656

29:25 <b>association</b> 27:21 <b>attendance</b> 10:18 18:9 33:6 <b>attending</b> 25:12,13 <b>attention</b> 21:21 <b>attorney</b> 35:13,17 <b>audience</b> 5:13 6:8 25:23 26:2,8,16,20,23 27:16,22 28:2,24 29:5,15 30:2 30:6,12 31:1,14 <b>available</b> 6:14 10:10,17 11:3 13:3 22:24 32:9 <b>Average</b> 17:25	11:15 <b>believe</b> 26:6,10 <b>best</b> 2:22 30:17 <b>Bill</b> 3:6 <b>Biological</b> 19:10 <b>board</b> 19:22 <b>boards</b> 17:1 <b>Bob</b> 11:11 <b>booth</b> 33:22 34:4 <b>booths</b> 10:19 <b>bottom</b> 29:9 <b>box</b> 6:9 <b>break</b> 7:15,16 31:21 32:12,14 <b>brief</b> 31:21 <b>briefly</b> 19:17 22:4 <b>bring</b> 5:20 <b>brochures</b> 9:20 <b>building</b> 17:10 <b>Bureau</b> 8:10,21 9:10 12:18 13:2 15:2 17:16 20:21 21:24 24:9	<b>Captain</b> 1:7,8 2:2,8 3:5 12:13 18:14,17 18:22 22:2 <b>card</b> 5:16,20,22 6:16,18 32:2,2 <b>Cardno</b> 13:2 <b>cards</b> 6:5,10,13 <b>care</b> 14:2 <b>CD</b> 10:20 <b>cell</b> 2:18 <b>central</b> 2:10 13:11 <b>certainly</b> 20:6 26:1 31:5 <b>Certified</b> 1:13 35:5,21 <b>certify</b> 35:8,12 <b>change</b> 17:3,5 <b>changes</b> 17:6,8 <b>check-in</b> 7:21 10:21 <b>checked</b> 6:9 <b>Chief</b> 3:6,17 <b>chosen</b> 18:4 <b>Circle</b> 1:23 <b>citizens</b> 7:3 <b>clarification</b> 5:14,25 31:19 <b>clarify</b> 25:14 30:22 31:5 <b>clarifying</b> 8:3 <b>classic</b> 27:21 <b>clear</b>
<b>B</b>		
<b>B</b> 1:6,12 <b>back</b> 25:5 31:4,23 <b>barged</b> 30:14 <b>base</b> 1:4 2:3,7 3:8 11:13 13:14 14:12 14:20,23 15:14 16:7,12 17:17 18:3,7 20:1,22 28:23 30:15 <b>based</b> 16:14 17:4 20:3 27:3 28:20 31:21 <b>baseline</b> 15:25 19:23 <b>basing</b> 16:2,20 21:20 <b>beddown</b> 1:4 2:7 11:19,23 14:10,19,24,25 15:5,9 16:18 17:14,19 18:5 25:3 <b>began</b> 23:17 <b>beginning</b> 22:25 <b>behalf</b>	<b>C</b> 35:3,3 <b>called</b> 7:9,11 23:10 <b>capability</b> 27:3 <b>capacity</b> 3:10	

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3:9 <b>closer</b> 24:13 <b>collect</b> 5:24 <b>Colonel</b> 1:7,8 2:25 3:3,5 11:7,9,10 12:10 18:18 25:8,25 26:6,10,18,22 27:5,18,24 28:17 29:21 30:3 30:11,16 31:17 32:16 <b>come</b> 6:11 31:23 <b>comes</b> 30:9,13 <b>command</b> 3:16 <b>Commander</b> 11:7,11 18:21 <b>commencing</b> 1:15 <b>comment</b> 4:5,10,16,21 6:4,5 7:9 8:22,24 9:5 23:6,8,25 24:3 25:19,22 31:23 32:3,22,24 33:3,25 <b>commenting</b> 12:7 <b>comments</b> 2:22 4:17 5:3,6 6:2,11 7:4,7 8:13,13,18,19,20 9:2,11,15 10:3 19:5 23:13 24:6,10,12,16 24:18 31:24 33:7,10 34:2 <b>commonly</b> 11:25 22:6 <b>communication</b> 33:16 <b>communities</b> 21:17 23:24 <b>community</b> 13:12,13,18,21 14:2 18:25 <b>compile</b> 9:18 <b>complete</b> 21:19 <b>completed</b> 20:19 <b>component</b> 27:8 29:3 <b>concerning</b>	9:21 <b>concerns</b> 9:11 <b>conclude</b> 5:2 18:13 <b>concluded</b> 34:9 <b>concludes</b> 25:2 <b>conclusion</b> 8:5 <b>conformity</b> 20:17 <b>conjunction</b> 27:8 <b>consequences</b> 15:8 16:2 <b>conservative</b> 20:4 <b>consideration</b> 8:15 16:25 24:12 <b>considerations</b> 12:19 <b>cousidered</b> 22:20 <b>consistently</b> 13:20 <b>construction</b> 17:10 21:1 <b>consultant's</b> 8:10 <b>consultants</b> 13:3 <b>content</b> 23:8 <b>continue</b> 5:3,9 24:9 <b>continued</b> 4:12 <b>continues</b> 23:20 <b>contour</b> 18:1 <b>contours</b> 19:23,25 20:9 <b>conversion</b> 12:6 <b>coordinating</b>	20:21 <b>coordination</b> 21:9 <b>copies</b> 10:16 <b>copy</b> 10:15 <b>correct</b> 30:11 35:9 <b>corridor</b> 32:11 <b>counsel</b> 35:13,17 <b>course</b> 22:8 <b>court</b> 1:13,22 7:13,16 <b>create</b> 29:16 <b>criteria</b> 20:14 23:3 <b>Cultural</b> 19:10 <b>current</b> 13:4,15,16 <b>currently</b> 16:21 26:7 30:5 <hr/> <b>D</b> <hr/> <b>D</b> 1:6,11,12 <b>date</b> 1:15 21:11 <b>Day-Night</b> 17:25 <b>de</b> 20:16 <b>debate</b> 7:24 <b>decibel</b> 17:25 <b>decision</b> 4:11 16:19,22 21:20 22:20 24:23,25 <b>decision-makers</b> 15:25 22:7,10 <b>decisions</b> 22:12,15
--	--	--

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<b>deeply</b> 13:25 14:2	<b>District</b> 1:17	<b>employee</b> 35:16
<b>delivery</b> 10:8	<b>disturbance</b> 21:4	<b>ends</b> 9:7 24:4
<b>demolition</b> 17:11	<b>document</b> 10:21 19:20	<b>enjoy</b> 2:12
<b>Department</b> 20:23	<b>documents</b> 10:5,8,9	<b>enjoyment</b> 32:10
<b>deposition</b> 34:8 35:15	<b>Doolittle</b> 1:7 2:2,9 3:5	<b>ensure</b> 7:2 12:1 22:10 33:17
<b>described</b> 33:7	<b>door</b> 6:20	<b>entertained</b> 6:1
<b>describing</b> 6:20	<b>draft</b> 1:3 2:5 4:2,22 6:24 7:25 8:7 9:6 10:15 11:18 12:8 15:3,6 16:21 18:20 19:6,12,14,20 22:22,23 23:21 24:1,17	<b>entire</b> 26:11
<b>description</b> 6:22	<b>duly</b> 35:6	<b>entrance</b> 11:3
<b>deserve</b> 24:13	<b>duty</b> 14:14 27:17 29:2,24	<b>Environment</b> 31:13
<b>designed</b> 8:1	<b>E</b>	<b>environmental</b> 1:3 2:6 3:22 4:2,7,14,22 6:25 7:25 8:7 9:4,6,21 10:16,23 11:18,24 12:8,15,20,24 13:2 13:14 14:15 15:3,6,7,23 16:2 18:15,20,23 19:6,12,14 20:20 20:24 21:25 22:5,11,14,16,22 23:3,9,19,22 24:2,14,17,20 31:11 33:13
<b>designee</b> 24:24	<b>earlier</b> 7:17	<b>equal</b> 8:14 33:9
<b>desire</b> 6:10,16 32:3	<b>effort</b> 20:24	<b>equally</b> 16:25
<b>desk</b> 5:17 7:21 10:22	<b>Egypt</b> 1:18	<b>estimate</b> 20:5
<b>detail</b> 8:8	<b>eight</b> 26:3,5,19	<b>estimated</b> 17:14
<b>determination</b> 20:17	<b>EIS</b> 1:2 2:1 13:7 16:22 19:20 22:23 24:15,20	<b>evaluated</b> 15:24 19:11
<b>determining</b> 22:8	<b>either</b> 13:8 18:11	<b>evaluates</b> 16:1 19:7
<b>development</b> 12:24 13:22	<b>elected</b> 7:10 9:25	<b>evening</b> 2:4 3:4 6:4 11:10,21 12:4 14:17 18:10,18 34:6
<b>developments</b> 10:9	<b>eleven</b> 19:7,21	<b>evening's</b> 12:13 33:15
<b>difference</b> 28:8	<b>emissions</b> 20:13	<b>existing</b> 14:6 18:6 19:23
<b>difficult</b> 24:11	<b>emphasize</b> 16:17	<b>exit</b> 7:19 32:11
<b>direct</b> 4:17 13:9	<b>employed</b> 35:14,17	
<b>directly</b> 3:17		
<b>discuss</b> 8:6 19:3 21:25		
<b>discussion</b> 5:8 14:17		

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<b>expect</b> 19:15 28:14	13:6	13:22
<b>explain</b> 29:19	<b>findings</b> 4:21 8:6 12:8 23:1	<b>found</b> 5:17 6:6 7:20
<b>explaining</b> 12:19	<b>fine</b> 31:3	<b>four</b> 26:9
<b>explanation</b> 25:2	<b>Fire</b> 1:16,17	<b>free</b> 33:21
<hr/>	<b>first</b> 7:12 14:12 23:10	<b>Freeway</b> 1:23
<b>F</b>	<b>five</b> 1:15 15:10 29:12	<b>FTU</b> 14:11,24
<b>f</b> 1:6 35:3	<b>fleet</b> 14:6,8 26:11 27:13	<b>fuel</b> 30:8
<b>facilitate</b> 12:6 13:5 22:12	<b>floodplains</b> 21:6	<b>fueled</b> 31:10,10
<b>facilities</b> 21:1	<b>flying</b> 20:3,5	<b>further</b> 10:9,20 18:11 35:12
<b>facility</b> 2:14 17:11	<b>following</b> 5:12 24:5	<b>furthermore</b> 35:15
<b>factors</b> 16:16 22:19	<b>Forbes</b> 15:12	<b>future</b> 14:3 18:7 22:8
<b>Failure</b> 10:6	<b>Force</b> 3:8,8,18,20 12:12 14:5,9,18 16:9,13,23 21:19 22:21 24:8 24:24 27:9	<hr/>
<b>far</b> 28:3	<b>Force's</b> 14:8	<b>G</b>
<b>February</b> 22:25	<b>foregoing</b> 35:8	<b>gain</b> 30:3
<b>federal</b> 3:10 9:24 22:7,8 23:14	<b>foreseeable</b> 18:7	<b>General</b> 3:19 6:1
<b>federally</b> 21:7,10	<b>form</b> 8:22	<b>gentlemen</b> 2:4 18:19
<b>fee</b> 31:8	<b>formal</b> 2:16 3:1 4:9,24 5:4 9:5 13:4 14:10 16:19 18:12 24:3 30:23 32:21,24 33:2,25	<b>give</b> 2:23 24:11 26:21
<b>feel</b> 31:8 33:21	<b>forth</b> 23:4 31:4	<b>given</b> 8:14 33:9
<b>filed</b> 8:23	<b>forum</b> 23:10	<b>gives</b> 23:23
<b>fill</b> 5:16	<b>forums</b> 23:6	<b>goal</b> 11:21 22:13 33:15,21
<b>filled</b> 5:21 6:15	<b>forward</b> 6:12 21:15	<b>going</b> 26:9 31:4 32:23
<b>final</b> 9:4 16:22 21:20 24:14,15,19,20 33:13	<b>Forwarded</b> 9:24	<b>good</b> 2:3 3:4 11:10 18:18 34:6
<b>finalizing</b> 20:19	<b>foster</b>	<b>government</b> 24:7
<b>financially</b> 35:18		<b>government-to-government</b> 21:9
<b>find</b>		<b>greater</b> 8:8 13:11
		<b>groups</b>

National Court Reporters, Inc 888.800.9656



9:22 <b>Guard</b> 1:1 6:21 8:9,21 9:9,10 11:13,16 12:18 13:1,1,23 14:22 15:2,11 15:12,16,19,21 16:10,13 17:15 20:21 21:8,23 24:8 27:14 29:23 30:1 <b>guess</b> 30:14	<b>host</b> 16:5 <b>hour</b> 7:15 <b>hours</b> 20:3,5	13:9 <b>individually</b> 5:9 <b>individuals</b> 4:18 7:10 9:22 10:3 12:4,23 17:22 <b>inform</b> 9:13 <b>information</b> 6:23 9:20 10:7,19 11:22 19:19 22:11 33:17,22 <b>informational</b> 10:25 11:2 <b>informed</b> 22:12 33:18 <b>initiated</b> 21:8 <b>input</b> 13:13 21:15 22:12 <b>installation</b> 3:16 16:3,5 17:4 27:7,12 <b>installations</b> 15:11 <b>Intent</b> 23:18 <b>interest</b> 18:9 19:4 <b>interested</b> 5:10 7:2 9:23 19:1 35:18 <b>International</b> 13:1 14:21 15:10 16:9 27:14 29:23,25 <b>interrupt</b> 2:20 <b>introduce</b> 12:3 <b>involved</b> 4:25 12:23 <b>involvement</b> 3:20 <b>involving</b> 22:17
<b>H</b>	<b>I</b>	<b>J</b>
<b>H</b> 1:6,11 <b>hallway</b> 7:19 <b>Hampshire</b> 15:17 <b>hand</b> 5:19,23 6:17 11:4 <b>handout</b> 33:8 <b>handouts</b> 10:25 <b>happens</b> 19:1 <b>Headquarters</b> 12:11 <b>hearing</b> 1:1,2,3 2:1,5,17 3:2,12 4:1,8,16 4:20,23 5:1,7 7:22,24 8:6 10:18 11:17 12:13 14:22 18:14 18:20 23:5,23 25:6 32:7,17,25 <b>Heights</b> 1:24 <b>held</b> 23:11 <b>help</b> 13:5 <b>helped</b> 13:22 <b>hereto</b> 35:17 <b>home</b> 13:15 14:3 <b>Honor</b> 11:10 <b>hope</b> 33:20	<b>idea</b> 28:13,15 <b>identical</b> 28:5 <b>identify</b> 14:9 <b>impact</b> 1:3 2:6 3:22 4:2,14,22 6:25 7:25 8:7 9:5,6,21 10:16,23 11:18 12:9,24 14:16 15:3,6 18:21 19:6,13 20:20 21:25 22:14,22 23:9,19,22 24:2,15,17,20 29:8 31:13 33:13 <b>impacts</b> 15:5 19:7,16 20:11 21:6 22:17 <b>impervious</b> 21:5 <b>important</b> 9:8 11:17 13:12 19:2 <b>importantly</b> 4:23 <b>in-depth</b> 19:19 <b>include</b> 19:9 28:22 <b>included</b> 9:2 33:12 <b>including</b> 5:7 15:11 <b>increase</b> 17:21,23 18:2 20:9 <b>independent</b> 3:13 4:1 <b>indicate</b> 18:22 <b>indicated</b> 6:16 21:13 <b>indicating</b> 6:10 <b>individual</b>	<b>Jersey</b> 1:15,18 2:11 9:9 11:13,15 12:25 13:11,23 15:15 20:23 35:7 <b>joint</b>

National Court Reporters, Inc 888.800.9656

11:13 13:14 15:14 17:17 18:3 20:1,22 27:3,11 28:20,23	<b>lead</b> 29:23	9:18
<b>judge</b> 2:25 3:3,5,7,11,18,19	<b>led</b> 14:13,21	<b>main</b> 1:4,17 2:7 14:12,19,23 16:6,11 27:6
<b>judgment</b> 16:16	<b>left</b> 5:11 7:18	<b>manager</b> 1:9 12:15 18:15,23 21:24
<b>Judiciary</b> 3:13	<b>legal</b> 3:23	<b>manpower</b> 17:7 30:4
<b>June</b> 23:12 25:1	<b>legitimate</b> 8:3	<b>March</b> 1:11 9:7 24:4 34:1
<b>jurisdiction</b> 23:15	<b>Level</b> 18:1	<b>marked</b> 7:19
<b>K</b>		
<b>Kansas</b> 15:13	<b>libraries</b> 10:11	<b>materials</b> 5:7 6:20 11:2 33:8 34:5
<b>KC-10</b> 26:25	<b>License</b> 1:14 35:21	<b>maximum</b> 12:1
<b>KC-10s</b> 27:2	<b>limit</b> 7:4	<b>McGuire</b> 26:4,16,17 28:21,23
<b>KC-135</b> 14:6 17:19 18:6 19:24 26:11	<b>list</b> 10:22	<b>McGuire-Dix-Lakehurst</b> 11:14 13:15 15:15 17:18 18:4 20:2,22 27:4 28:6,11 30:9
<b>KC-135s</b> 26:3,15,17	<b>listed</b> 21:7 32:20	<b>McGuire-Dix-Lakehurst</b> 26:4
<b>KC-46A</b> 1:4 2:8 11:20 14:7,19 15:5,9 16:3,6,11,20 17:19,20 18:5 19:25 25:3 26:12	<b>lists</b> 9:19	<b>mean</b> 26:25 27:11 28:7 29:6
<b>KC-46s</b> 26:15	<b>live</b> 13:17 14:1	<b>meaning</b> 20:5
<b>keep</b> 7:23 26:9 31:4	<b>lobby</b> 2:14	<b>means</b> 28:25,25 29:3,7
<b>key</b> 12:19	<b>local</b> 9:25 10:12 18:25 23:14	<b>meeting</b> 5:11 10:25 23:10
<b>know</b> 18:10 27:14 28:24 31:10	<b>located</b> 2:10 7:18	<b>member</b> 3:15 13:7 18:24 25:23 26:2,8,16 26:20,23 27:16,22 28:2,24 29:5,15 30:2,6,12 31:1,14
<b>known</b> 14:11,12,20	<b>location</b> 17:7	<b>members</b> 5:8,13 6:8 8:8 13:17 14:1
<b>L</b>		
<b>L</b> 1:6,11	<b>locations</b> 6:24 10:11,22 14:10 22:25 23:12	<b>Mendez</b> 1:8 12:14 18:14,17,22 22:3
<b>ladies</b> 2:4 18:18	<b>look</b> 21:15	<b>mentioned</b> 7:17 19:18
<b>Lakehurst</b> 28:16	<b>looking</b> 26:25	<b>met</b> 12:10
<b>late</b> 17:15	<b>lose</b> 26:14	<b>Meyer</b> 1:8 11:7,9,11 18:18
<b>M</b>		
<b>mailing</b>	<b>lot</b> 27:2	<b>Middleburg</b> 1:24
	<b>military</b>	

National Court Reporters, Inc 888.800.9656

3:7 13:20 16:15	35:12	25:20
<b>mind</b>	<b>Nellis</b>	<b>Office</b>
7:23	3:8	2:10
<b>minimis</b>	<b>NEPA</b>	<b>officer</b>
20:16	4:25 9:12,16 11:25 21:18,19	2:3 4:1 25:6
<b>minor</b>	22:1,5,6,9 23:4 24:10 25:4	<b>offices</b>
17:9 20:25	33:18	1:16
<b>minutes</b>	<b>net</b>	<b>official</b>
7:4	30:3	6:21 33:12
<b>mix</b>	<b>Nevada</b>	<b>officials</b>
17:5	3:8	7:10 10:1
<b>MOB</b>	<b>new</b>	<b>Ohio</b>
14:13,20,23,24 15:5 17:19	1:15,17,18 2:11 9:9 11:12,15	1:24 15:21
<b>mode</b>	12:25 13:11,22 14:7 15:15,17	<b>Okay</b>
2:19	17:12 20:23 21:4 35:7	26:23
<b>models</b>	<b>newspapers</b>	<b>once</b>
30:4	10:12	5:21 6:7 21:18 31:6
<b>moderator</b>	<b>nitrogen</b>	<b>open</b>
3:11	20:15	9:10 33:16
<b>modification</b>	<b>no-action</b>	<b>operate</b>
28:3	15:22 16:1,4	27:25 30:4
<b>modifications</b>	<b>noise</b>	<b>operated</b>
28:4	18:1 19:9,22,23,25 20:8	27:7
<b>modified</b>	<b>Notary</b>	<b>Operating</b>
4:13 17:12	1:14 35:6	1:4 2:7 14:12,20,23 16:6,12
<b>mouthful</b>	<b>note</b>	<b>operational</b>
18:2	25:18	16:14 20:12
<b>Muldoon</b>	<b>notes</b>	<b>operations</b>
1:7 2:25 3:3,6 12:11 25:8,25	35:10	17:9,22 19:24 20:1
31:17 32:16	<b>Notice</b>	<b>opportunity</b>
	23:18	2:23 4:4,9,21,24 7:3,6 23:7,25
<b>N</b>	<b>notification</b>	25:21 33:25
	10:8	<b>oral</b>
<b>N</b>	<b>number</b>	2:22 6:11 8:13,16 24:5 33:10
1:11 35:3	12:22 17:8 20:6 22:24 29:8	<b>orally</b>
<b>name</b>		6:4
7:9 9:15 11:10 13:7	<b>O</b>	<b>organization</b>
<b>National</b>	<b>O</b>	3:13
1:1,22 6:21 8:9,21 9:9,10 11:13	1:6,11,12 35:3	<b>organizations</b>
11:16,24 12:18,20 13:1,23	<b>o'clock</b>	7:11
15:2,12,16,18,20,23 16:13	1:16	<b>original</b>
17:15 20:21 21:8,23 22:5 24:8	<b>objective</b>	35:9
<b>near</b>	22:9	<b>outset</b>
7:20	<b>occasion</b>	3:9
<b>necessary</b>	19:2	<b>outside</b>
5:2	<b>occur</b>	2:13
<b>need</b>	21:14	<b>overall</b>
28:10 34:5	<b>offer</b>	5:6
<b>neither</b>		

National Court Reporters, Inc 888.800.9656

<b>overview</b> 12:16	14:9	<b>printed</b> 8:22,24
<b>oxides</b> 20:15	<b>please</b> 2:12,20,21 5:22 6:17 11:3 18:10 33:21 34:3	<b>prior</b> 20:19
<b>P</b>	<b>Plumbsted</b> 1:16	<b>Privacy</b> 9:14
<b>P</b>	<b>point</b> 11:6 25:20	<b>private</b> 10:2
1:12	<b>points</b> 5:15	<b>proceed</b> 10:13 21:17
<b>p.m</b> 1:16 5:2,5,10 34:9	<b>Policy</b> 11:24 12:21 15:24 22:6	<b>proceeded</b> 25:15
<b>panel</b> 4:18 6:3 25:14	<b>pollutants</b> 20:14	<b>proceeding</b> 7:14
<b>part</b> 13:18 14:16 30:23 31:11 33:11	<b>portion</b> 2:17 3:2 4:16 14:5 31:7 32:24	<b>proceedings</b> 1:2 2:1,19 18:12
<b>participation</b> 12:1,7 19:4 33:18	<b>possess</b> 26:18	<b>process</b> 4:25 9:12,16 12:2 13:6 21:18 22:1,5,18 23:17 24:10,13 25:4 33:11,19
<b>particular</b> 23:16	<b>poster</b> 17:1 19:22	<b>program</b> 25:5
<b>parties</b> 5:10 35:14,17	<b>potential</b> 15:4,7 22:16	<b>prohibited</b> 2:15
<b>Patricia</b> 1:13 35:5,20	<b>potentially</b> 23:24	<b>project</b> 1:9 4:12 9:19 10:10 21:14,24
<b>Pease</b> 15:16 16:9,13 26:5,6 27:17 28:4 28:12 29:11,11,11 30:13	<b>preferred</b> 16:10,17	<b>property</b> 17:24 20:11
<b>Pennsylvania</b> 15:19	<b>preparation</b> 3:21	<b>proposal</b> 6:21 22:21 25:3
<b>people</b> 28:10,16 29:1,8,17	<b>prepare</b> 23:19	<b>proposed</b> 3:21 4:5,12 6:22 11:19,23 12:16 14:4 15:9 17:2,13 19:8,15,24 20:12 23:2 33:24
<b>percent</b> 17:23	<b>prepared</b> 4:15 15:3 20:18	<b>provide</b> 4:20 6:10 7:7 8:12,17 10:6 11:4 11:22 12:15 15:25 23:7 33:16 34:1
<b>period</b> 9:6 24:4,5,22 34:1	<b>preparing</b> 22:13	<b>provided</b> 2:13 6:18 9:16 10:24 19:20 21:16 32:1
<b>person</b> 7:5	<b>present</b> 6:3	<b>provides</b> 4:8
<b>personnel</b> 17:21	<b>presentation</b> 5:12 10:14 21:22	<b>providing</b> 2:21 4:4
<b>phones</b> 2:18	<b>presented</b> 6:1 24:1	<b>public</b> 1:1,3,14 2:3,5,10 4:1,8,15,19 7:23 10:5,24 11:17 18:19
<b>pick</b> 10:20	<b>presents</b> 23:1	
<b>pipe</b> 30:10	<b>presiding</b> 12:12	
<b>Pittsburgh</b> 15:18	<b>prevent</b> 10:7	
<b>placed</b> 2:18	<b>primarily</b> 8:1 27:7	
<b>plans</b>		

National Court Reporters, Inc 888.800.9656

21:16 22:11,17,25 23:5,6,7,21 24:3,6,21 25:18 31:22,24 32:21,24,24 33:3 35:6 <b>published</b> 10:4,12 <b>purpose</b> 4:19	32:17 <b>record</b> 7:14 9:3 24:22,25 30:7 31:24 33:12 <b>recording</b> 7:13 <b>records</b> 25:10 <b>refer</b> 27:20 <b>referred</b> 11:25 22:6 <b>reflect</b> 26:24 <b>refreshments</b> 2:12 7:20 32:9 <b>refueling</b> 11:8,12 14:6 27:6 <b>regarding</b> 4:2 5:14,25 11:18 12:20 14:22 33:23 <b>Regional</b> 3:6 <b>registration</b> 5:17 6:9,13,14 34:4 <b>related</b> 35:13 <b>relative</b> 35:16 <b>release</b> 23:18 24:14 <b>released</b> 10:5 24:21 <b>relevant</b> 9:1 22:19 31:12 <b>relinquished</b> 26:11 <b>remain</b> 18:6 <b>remind</b> 33:5 <b>rendered</b> 3:23 <b>renovation</b> 17:10 21:1 <b>repeat</b> 10:4 <b>replace</b>	14:5 <b>replaced</b> 17:20 26:12,13,15 <b>report</b> 3:17 <b>reporter</b> 1:14 7:13,16 35:6,21 <b>REPORTERS</b> 1:22 <b>reports</b> 9:19 <b>representatives</b> 8:11 <b>representing</b> 7:11 <b>requested</b> 10:7 <b>required</b> 15:23 17:9,12 21:2 <b>requirement</b> 9:13 <b>requirements</b> 21:18 <b>requires</b> 29:16 <b>reserve</b> 27:10,15 <b>resources</b> 19:8,10,11,11,16,18,21 21:14 23:16 <b>respect</b> 3:24 <b>respectful</b> 2:21 <b>responded</b> 24:19 <b>responses</b> 21:12 <b>responsible</b> 4:3 <b>responsive</b> 9:11 <b>restrooms</b> 2:13 7:18 32:10 <b>result</b> 15:8 17:2 19:13 22:18 <b>resulting</b> 21:2
<b>Q</b>		
<b>qualified</b> 35:7 <b>quality</b> 19:9 20:12,24 23:17 <b>question</b> 5:16,22 28:15 30:22,22 32:2 <b>question-and-answer</b> 8:2 <b>questions</b> 5:14,24 6:7 8:3 12:5 13:5,8,10 25:11,14,24 31:2,6,18 32:19 33:23		
<b>R</b>		
<b>R</b> 1:6,12,12 35:3 <b>raise</b> 5:19,22 6:17 11:3 <b>re-fueling</b> 27:13 <b>read</b> 6:2 <b>reaffirm</b> 8:17 <b>realize</b> 9:8 <b>reason</b> 28:9 <b>receive</b> 11:1 <b>received</b> 5:4 21:12 24:6 32:18 <b>recognized</b> 21:10 <b>recommendation</b> 4:11 <b>reconvene</b> 32:7 <b>reconvened</b>		

National Court Reporters, Inc 888.800.9656

<b>results</b> 16:15 <b>retired</b> 13:17 <b>return</b> 25:5 <b>review</b> 6:24 10:17,24 23:21 <b>reviewed</b> 10:15 19:12 24:7,19 <b>Rickenbacker</b> 15:20 <b>right</b> 13:9 28:22 29:10,13 30:21 <b>Robert</b> 1:8,8 12:14 18:22 <b>robust</b> 27:12 <b>room</b> 3:15 5:19 6:6 <b>Rowe</b> 1:9 12:17 21:23 22:2 25:9 26:13 28:20 29:4,10,18 30:20 31:3 31:16 <hr/> <p style="text-align: center;"><b>S</b></p> <hr/> <b>Safety</b> 19:9 <b>scattered</b> 5:18 <b>scenario</b> 29:22 <b>scheduled</b> 5:1 24:25 <b>scope</b> 23:8 <b>scoping</b> 23:10 <b>second</b> 1:4 2:7 14:19,23 16:6,11 23:6 <b>Secretary</b> 16:8,23 24:23 <b>secure</b> 30:9 <b>see</b> 20:8 28:2,7 30:2 31:21 <b>seeing</b> 25:16 33:5	<b>select</b> 10:11 <b>selected</b> 16:5,13 17:4,7,18 <b>sending</b> 9:19 <b>sent</b> 8:21 <b>separate</b> 14:15,25 27:23 <b>serve</b> 3:25 18:23 <b>session</b> 5:4 8:2 13:4 <b>set</b> 23:4 <b>share</b> 27:24 <b>sheets</b> 8:25 32:20 <b>Shorthand</b> 35:6,21 <b>show</b> 25:10 <b>shown</b> 17:1 <b>shows</b> 19:22 <b>sign</b> 7:20 32:11 33:2 <b>sign-in</b> 32:20 <b>signed</b> 24:23 25:1 <b>significant</b> 19:16 20:13 <b>silent</b> 2:19 <b>sir</b> 29:18 30:20 31:16 <b>site</b> 16:15 <b>smoking</b> 2:14 <b>soil</b> 21:3 <b>solely</b> 3:11	<b>solicited</b> 23:14 <b>sorry</b> 29:4 <b>sound</b> 18:1 22:15 <b>space</b> 17:6 <b>speak</b> 2:23 6:16 7:3 19:17 31:9 32:21 <b>speakers</b> 2:20 <b>species</b> 21:7 <b>squadron</b> 29:22,24 <b>staff</b> 5:23 8:8 32:4 <b>staffing</b> 17:6 <b>starting</b> 2:16 <b>state</b> 9:24 23:14 35:7 <b>stated</b> 32:8 <b>statement</b> 1:3 2:6 3:22 4:3,14,22 6:25 8:1 8:7,16,17 9:5,7,22 10:16,23 11:19 12:9,25 14:16 15:4,6 18:21 19:7,13 20:20 21:25 22:14,23 23:9,19,22 24:2,15 24:17,21 30:25 31:13 33:14 <b>States</b> 3:7,12,18 16:12 <b>Station</b> 1:17 15:13,17,19,21 16:10,14 <b>stenographic</b> 35:10 <b>stop</b> 30:21 34:3 <b>Street</b> 1:17 <b>subject</b> 14:15,25 <b>submit</b> 6:5 <b>submitting</b>
--	---	---

National Court Reporters, Inc 888.800.9656

10:3	1:13 35:5,20	<b>two</b>
<b>substantive</b>	<b>thank</b>	23:6
9:1 24:18	3:4 11:9 18:8,16,17 21:21 22:2	<b>type</b>
<b>summarize</b>	25:6,9 31:2,15 34:5	7:24 17:3
22:4	<b>threshold</b>	
<b>supply</b>	20:16	<hr/> <b>U</b> <hr/>
30:8,13	<b>time</b>	<b>underground</b>
<b>support</b>	2:24 7:5,8 32:4,7 33:3	30:10
13:24 17:13 22:15	<b>today</b>	<b>understand</b>
<b>supporting</b>	23:20	26:3 29:6,7 30:7 31:15
29:2	<b>tonight</b>	<b>understanding</b>
<b>supportive</b>	3:25 4:5 7:1	12:2 30:18
13:20	<b>tonight's</b>	<b>understood</b>
<b>sure</b>	2:17 3:2 18:12 23:5	5:15
29:5	<b>tons</b>	<b>uniform</b>
<b>surface</b>	20:16	13:7
21:5	<b>topic</b>	<b>unit</b>
<b>surveys</b>	19:3	14:11,22 18:24 20:4 27:19
16:15	<b>topics</b>	<b>United</b>
	5:25	3:7,12,18 16:12
<hr/> <b>T</b> <hr/>	<b>total</b>	<b>units</b>
<b>T</b>	17:22	14:14
1:12 35:3,3	<b>traditional</b>	<b>urge</b>
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7:15,16 28:18 31:20,24 32:12	<b>Trial</b>	<b>versus</b>
<b>taken</b>	3:12,17	28:11
32:14 35:15	<b>tribe</b>	<b>viewed</b>
<b>tanker</b>	21:12	5:7
1:4 2:8 11:20 18:5 30:19	<b>tribes</b>	<b>viewing</b>
<b>team</b>	21:10	22:24
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<b>we're</b> 31:6	<b>1158</b> 1:14 35:21	
<b>website</b> 8:23 10:10	<b>12</b> 15:9 17:20 26:7,14,15,22 28:1	
<b>weight</b> 33:9	<b>135R</b> 30:4	<b>5</b>
<b>welcome</b> 2:4 8:16 11:16 18:19	<b>135s</b> 27:1 28:1	<b>514</b> 27:9,15
<b>wetlands</b> 21:6	<b>15</b> 17:23	<b>59</b> 1:17
<b>William</b> 1:7 2:25 3:3 12:11 25:8,25 31:17 32:16	<b>17</b> 23:20	<b>6</b>
<b>winds</b> 24:13	<b>187</b> 28:11	<b>6:47</b> 34:9
<b>Wing</b> 2:9 8:9 11:8,11,12 13:12,16,21 13:24 18:15,24	<b>1974</b> 9:14	<b>65</b> 17:25
<b>Wing's</b> 12:14	<b>2</b>	<b>7</b>
<b>wish</b> 6:17 8:12	<b>2</b> 14:20 15:5 17:19	<b>7835</b> 1:23
<b>work</b> 3:14 14:1	<b>2.4</b> 21:4	<b>7th</b> 23:1
<b>written</b> 8:13,17,20 24:5 25:11 32:19 33:7,10 34:2	<b>2013</b> 16:8 23:12,20	<b>8</b>
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<b>Y</b>	<b>2018</b> 17:15	<b>8:00</b> 5:2,5,9
<b>Y</b> 1:12	<b>24</b> 9:7 34:1	<b>888-800-9656</b> 1:25
<b>year</b> 20:17	<b>24th</b> 24:4	
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DRAFT EIS PUBLIC HEARING

In Re: Second Main Operating Base Beddown of the  
KC-46A Tanker Aircraft

Thursday, March 6, 2014  
6:02 p.m.

Portsmouth City Hall  
Junkins Avenue  
Portsmouth, New Hampshire 03801

Court Reporter:

Michelle Perrier Cole

Licensed Court Reporter

NH LCR No. 78 (RSA 310-A)

1 JUDGE ADVOCATE: Colonel William Muldoon

2  
3 PRESENTERS:

4 1st Lieutenant Aaron McCarthy  
5 Colonel Paul Hutchinson  
6 Andy Smith, 157th Air Refueling Wing's Environmental  
7 Manager  
8 Anne Rowe, National Guard Bureau

9 OFFICIAL APPEARANCES:

10 Mayor Bob Lister  
11 Ms. Kerry McHugh, Office of Governor Hassan  
12 Ms. Sherri Pierce, Office of Senator Shaheen  
13 Mr. Bud Fitch, Office of Senator Ayotte  
14 Mr. Josh Denton, Office of U.S. Representative  
15 Shea-Porter  
16 Mr. Sean Downey, Office of U.S. Representative Kuster  
17 Major General William Reddel, the Adjutant General for  
18 the State of New Hampshire  
19 Brigadier General Carolyn Protzman, Deputy Adjutant  
20 General and the Commander of the Air National Guard for  
21 the State of New Hampshire  
22 Major General (ret.) Joe Simeone  
23 Major General (ret.) Mark Sears  
Colonel (ret.) Dick Martel

24  
25 SPEAKERS:

26 Mayor Robert Lister, Portsmouth  
27 State Senator Martha Fuller Clark  
28 Ms. Kerry McHugh, Office of Governor Hassan  
29 Ms. Sherri Pierce, Office of Senator Shaheen  
30 Mr. Bud Fitch, Office of Senator Ayotte  
31 Mr. Josh Denton, Office of U.S. Representative  
32 Shea-Porter  
33 Mr. Sean Downey, Office of U.S. Representative Kuster  
34 Ms. Renee Plummer  
35 Mr. Doug Bates  
36 Mr. Ron Snow

1     SPEAKERS:

2     Ms. Karen Benedetti, Office of Gordon Simmons, President  
3         and CEO of Service Credit Union

3     Mr. Bill Hopper

       Mr. John Frink

4     Dr. Melvin Prostkoff

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8     (Letters read into the record as part of this  
9         transcript on behalf of Governor Hassan, Senator  
10         Shaheen, Senator Ayotte, U.S. Representative  
       Shea-Porter, U.S. Representative Kuster, and Gordon  
11         Simmons were not read verbatim, therefore, no quotes  
       are used.)

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1           LIEUTENANT MCCARTHY: Good evening, ladies and  
2 gentlemen. Welcome to the public hearing of the Draft  
3 Environmental Impact Statement for the second main  
4 operating base beddown of the KC-46A Tanker Aircraft.  
5 I am First Lieutenant Aaron McCarthy with the 157th  
6 Air Refueling Wing's Public Affairs Office located in  
7 Portsmouth/Newington, New Hampshire.

8           We'd like to remind you to please enjoy the  
9 refreshments provided out in the lobby. The restrooms  
10 are outside in the lobby down to the right, and  
11 smoking in this facility is prohibited.

12          Before starting the formal portion of tonight's  
13 hearing, I ask that cell phones be turned off or  
14 placed in silent mode. During the proceedings, please  
15 do not interrupt the speakers and please be respectful  
16 of those providing oral comments. We will do our best  
17 to give everyone an opportunity to speak in the time  
18 we have. Thank you.

19          COLONEL MULDOON (Judge Advocate): Good evening.  
20 My name is Colonel Bill Muldoon. I am a military  
21 judge. I'm the Chief Regional Military Judge for the  
22 Western region of the United States Air Force from  
23 Nellis Air Force Base, Nevada. Before we begin, I'd

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1 like to make clear from the outset that I am here in  
2 my capacity as a federal judge solely to act as  
3 moderator in this hearing. The United States Trial  
4 Judiciary is an independent organization. I do not  
5 work for or with anyone in this room. I am not a  
6 member of this command or assigned to this  
7 installation. I report directly to the Chief Trial  
8 Judge of the United States Air Force and to the Judge  
9 Advocate General of the United States Air Force. I  
10 have had no involvement with the preparation of this  
11 proposed action or the Environmental Impact Statement.  
12 I have not rendered legal advice or assistance with  
13 respect to this action. I am here tonight to serve as  
14 an independent public hearing officer regarding the  
15 Draft Environmental Impact Statement. I am  
16 responsible for providing everyone an opportunity to  
17 comment tonight on the proposed action, alternatives,  
18 and associated environmental analysis. This public  
19 hearing provides you with the formal opportunity for  
20 comment. I do not make any recommendation or decision  
21 on whether the proposed project should be continued,  
22 modified, or abandoned or how the Environmental Impact  
23 Statement should be prepared. Therefore, during the

1 public comment portion of this hearing, I urge you to  
2 direct your comments to the individuals on our panel.

3         The purpose of this public hearing is to provide  
4 you with an opportunity to comment on the findings of  
5 the Draft Environmental Impact Statement. More  
6 importantly, this hearing is a formal opportunity for  
7 you to get involved in the NEPA process. This hearing  
8 is scheduled to conclude at 8 p.m., but if necessary,  
9 will continue until all comments have been received.  
10 This formal session may end before 8 p.m. if there are  
11 no more comments. However, the overall hearing,  
12 including materials to be viewed and discussion with  
13 team members individually, will continue until 8 p.m.  
14 unless all interested parties have left the meeting.

15         If, following the presentation, any members of  
16 the audience have questions regarding clarification of  
17 any points you may not have understood, you may fill  
18 out a question card, which can be found at the  
19 registration desk or on several tables scattered  
20 throughout the room or you may raise your hand now and  
21 someone will bring a card to you. Once you have  
22 filled out your question on the card, please raise  
23 your hand again and one of our staff will collect it

1 from you. Only questions regarding clarification of  
2 the topics presented will be entertained. General  
3 comments on the action will not be, but you may  
4 present your comment orally later in this hearing or  
5 submit it on one of the comment cards found throughout  
6 the room.

7 If there are questions, we will take a 10-minute  
8 break to allow Colonel Hutchinson, the 157th Air  
9 Refueling Wing staff, National Guard Bureau staff, and  
10 the environmental consultants to review any questions  
11 submitted and identify the best person to answer each.

12 After we break, we will answer any questions we  
13 have received on the question cards from the audience.  
14 Once questions have been answered, members of the  
15 audience who checked the box on the registration cards  
16 indicating their desire to provide oral comments will  
17 be asked to come forward.

18 Registration cards were available at the  
19 registration table as you came in. If you have not  
20 filled out a card or indicated your desire to speak  
21 and wish to do so, please raise your hand and a card  
22 will be provided to you now.

23 In addition, there are materials at the door

1 describing the official Air National Guard proposal,  
2 the description of the proposed action and  
3 alternatives, and information on locations where you  
4 can review the Draft Environmental Impact Statement  
5 after tonight, if you have not already done so.

6 To ensure that all interested citizens have an  
7 opportunity to speak, I will limit the comments to  
8 five minutes per person. If time allows after  
9 everyone has had an opportunity to provide their  
10 comments, you may have more time. You will only be  
11 allowed to comment when your name is called. Elected  
12 officials and individuals representing organizations  
13 will be called upon first.

14 A court reporter is recording this proceeding  
15 for the record. We will take a 10-minute break every  
16 hour to allow the court reporter to take a break.

17 At this time, I would like to introduce and  
18 recognize public officials that are present at the  
19 hearing. Mayor Bob Lister; from the Office of  
20 Governor Hassan, Ms. Kerry McHugh; from the Office of  
21 Senator Shaheen, Ms. Sherri Pierce; from the Office of  
22 Senator Ayotte, Mr. Bud Fitch; from the Office of U.S.  
23 Representative Shea-Porter, Mr. Josh Denton; from the



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1 Office of U.S. Representative Ann Kuster, Mr. Sean  
2 Downey; Major General William Reddel, the Adjutant  
3 General for the State of New Hampshire; Brigadier  
4 General Carolyn Protzman, Deputy Adjutant General and  
5 the Commander of the Air National Guard for the State  
6 of New Hampshire; Major General (ret.) Joe Simeone;  
7 Major General (ret.) Mark Sears; and Colonel (ret.)  
8 Dick Martel.

9 As mentioned earlier, restrooms are located in  
10 the lobby to the right and refreshments can be found  
11 near the check-in desk.

12 Throughout this hearing, I ask you to keep in  
13 mind that this public hearing is not a debate or any  
14 type of vote on the Draft Environmental Impact  
15 Statement. Nor is it primarily designed as a question  
16 and answer session, although legitimate clarifying  
17 questions may be asked as I discussed earlier. At the  
18 conclusion of this hearing, you may discuss the  
19 findings of the Draft Environmental Impact Statement  
20 in greater detail with the staff members of the 157th  
21 Air Refueling Wing, National Guard Bureau, and the  
22 consultant's technical representatives.

23 If you do not wish to provide oral comments,

1 written comments will be accepted and will be given  
2 equal consideration. Even if you do make an oral  
3 statement, you are welcome to provide a written  
4 statement to reaffirm the comments you made and any  
5 additional comments you would like to make. Written  
6 comments should be sent to the National Guard Bureau  
7 at the address printed on the comment form that you  
8 filled out or on the website. The address is also  
9 provided on the comment sheets. All relevant and  
10 substantive comments will be included in the  
11 administrative record and will be addressed in the  
12 Final Environmental Impact Statement. The formal  
13 comment period for the Draft Environmental Impact  
14 Statement ends on March 24, 2014. It is very  
15 important for you to realize that the New Hampshire  
16 Air National Guard and the National Guard Bureau will  
17 be open and responsive to your comments and concerns  
18 throughout the NEPA process.

19 It is a requirement to inform you that under the  
20 Privacy Act of 1974, your name, address, and comments,  
21 if provided during of the NEPA process, will be used  
22 to compile mailing lists for sending project reports,  
23 brochures, and other information concerning the

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1 Environmental Impact Statement to those individuals  
2 and groups who might be interested; forwarded to  
3 federal, state, and local agencies and elected  
4 officials; the addresses of private individuals  
5 submitting comments will not, and I repeat, will not  
6 be published in documents released to the public.

7 Failing to provide the information requested  
8 would prevent delivery of documents and notification  
9 of further developments. However, documents are  
10 available on the project website and in select  
11 libraries with locations public -- excuse me -- with  
12 locations published in local newspapers.

13 Now, before we proceed with the presentation, if  
14 you have not reviewed a copy of the Draft  
15 Environmental Impact Statement, copies are able for  
16 you to review while in attendance at this hearing at  
17 each of the information booths. Further, you may pick  
18 up a CD with the document on it at the check-in desk.  
19 There's also a list of locations where the  
20 Environmental Impact Statement is provided for public  
21 review after this meeting in the informational  
22 handouts. If you did not receive other informational  
23 materials that were available at the entrance, please

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1 raise your hand and someone will provide them to you.

2 At this point, I will turn this over to Colonel  
3 Hutchinson, the Commander of the 157th Air Refueling  
4 Wing.

5 COLONEL HUTCHINSON: Thank you, Your Honor.  
6 Good evening. My name is Colonel Paul Hutchinson, and  
7 I am the Wing Commander for the New Hampshire Air  
8 National Guard's 157th Air Refueling Wing at the  
9 Portsmouth International Airport. On behalf of the  
10 New Hampshire Air National Guard, I want to welcome  
11 you all to this important public meeting regarding the  
12 Draft Environmental Impact Statement for the proposed  
13 beddown of the KC-46A Tanker Aircraft. It is our goal  
14 this evening to provide you with information about the  
15 proposed aircraft beddown and the National  
16 Environmental Policy Act, commonly referred to as  
17 NEPA, and to ensure your maximum participation and  
18 understanding of this process.

19 I would like to introduce you to individuals who  
20 are here this evening to assist in answering questions  
21 about the aircraft conversion and to facilitate your  
22 participation in commenting on the findings of the  
23 Draft Environmental Statement.

13

1           You have already met Colonel William Muldoon,  
2     Judge Advocate from Headquarters Air Force, Joint Base  
3     Andrews, Maryland. He will be presiding over this  
4     evening's hearing. Next, we'll have Mr. Andy Smith,  
5     the 157th Air Refueling Wing's environmental manager,  
6     who will provide an overview of the proposed action  
7     and alternates. Anne Rowe from the National Guard  
8     Bureau, who will be explaining some of the key  
9     considerations regarding the National Environmental  
10    Policy Act. We also have another -- a group of other  
11    individuals who have been involved in the development  
12    of the Environmental Impact Statement. They are from  
13    the New Hampshire Air National Guard, the National  
14    Guard Bureau, and Cardno TEC, our environmental  
15    consultants. They will be available after the current  
16    formal session to answer questions and to help  
17    facilitate the process. You will find that any member  
18    in uniform or with an EIS name tag can either answer  
19    your question or direct you to the right person to  
20    answer your question.

21           The greater Portsmouth and Newington community  
22    is important to the 157th Air Refueling Wing, and  
23    community input is valuable to the environmental

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1 analysis. Portsmouth International Airport is the  
2 current home of the 157th Air Refueling Wing. Many of  
3 our current as well as retired members live in the  
4 communities of Portsmouth and Newington, and we are --  
5 we are embedded as part of this community.

6 Many of you have consistently been supportive of  
7 the military and of the 157th Air Refueling Wing.  
8 This community has helped foster the development of  
9 the New Hampshire Air National Guard as well as the  
10 157th Air Refueling Wing over the years. This support  
11 is now and has been deeply appreciated. Like you, our  
12 members live and work in the community and care deeply  
13 about its future. This is home to all of us.

14 The proposed action is for the Air Force to  
15 replace a portion of the existing KC-135 air refueling  
16 fleet with the KC-46A, which will be a new aircraft to  
17 the Air Force fleet. As such the Air Force plans to  
18 identify locations for the beddown of a formal  
19 training unit, also known as FTU, and the First Main  
20 Operating Base, also known as MOB 1, which will both  
21 be led by active duty units. This has been the  
22 subject of a separate Environmental Impact Statement  
23 and is not part of the discussion tonight. The Air

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1 Force will also beddown the KC-46A at a Second Main  
2 Operating Base, also known as MOB 2, which will be led  
3 by an Air National Guard unit. This hearing is  
4 regarding the Second Main Operating Base beddown only,  
5 as the FTU and the MOB 1 beddown are the subject of a  
6 separate action.

7 The National Guard Bureau has prepared this  
8 Draft Environmental Impact Statement to analyze the  
9 potential impacts of the MOB 2 KC-46A beddown. The  
10 Draft Environmental Impact Statement analyzes  
11 potential environmental consequences that could result  
12 from the proposed beddown of 12 KC-46A aircraft at any  
13 of the five alternate Air National Guard  
14 installations, including Forbes Air National Guard  
15 Station, Kansas; Joint Base McGuire-Dix-Lakehurst, New  
16 Jersey; Pease Air National Guard Station, New  
17 Hampshire; Pittsburgh Air National Guard Station in  
18 Pennsylvania; and Rickenbacker Air National Guard  
19 Station, Ohio.

20 The no-action alternative is required by the  
21 National Environmental Policy Act and was evaluated  
22 also to provide a baseline to decision makers. The  
23 no-action alternative evaluates the environmental

1 consequences of not basing the KC-46A aircraft at any  
2 installation. Under the no-action alternative, no  
3 installation would be selected to host the KC-46A for  
4 the Second Main Operating Base.

5 In 2013, the Secretary of the Air Force  
6 announced Pease Air National Guard Station as the  
7 preferred alternative for the KC-46A Second Main  
8 Operating Base. The United States Air Force selected  
9 Pease Air National Guard Station on an operational  
10 analysis, results of site surveys, and military  
11 judgment factors. We would like to emphasize that  
12 although the preferred alternative for the beddown has  
13 been announced, no final decision has been made on the  
14 basing of the KC-46A aircraft currently under the  
15 analysis of this Draft EIS. Until a final decision is  
16 made by the Secretary of the Air Force, all  
17 alternatives are still under consideration and are  
18 treated equally.

19 As shown on the poster boards, as a result of  
20 the proposed action, there would be a change to the  
21 type of aircraft based at the selected location; a  
22 change in the mix of aircraft using the associated  
23 airspace; changes to staffing and manpower at the



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1 selected locations; changes to the number of airfield  
2 operations; as well as minor required construction,  
3 building renovation, and facility demolition. There  
4 would be no new or modified airspace required to  
5 support this action. The proposed aircraft beddown is  
6 estimated to begin in late 2017 or 2018 for the  
7 National Guard Bureau.

8           If Pease Air National Guard Station is selected  
9 for the MOB 2 KC-46A beddown, 8 KC-135 aircraft would  
10 be replaced by 12 KC-46A aircraft, personnel would  
11 increase by approximately 171 individuals, total  
12 airfield operations would increase by 7 percent, and  
13 the acreage off airport-controlled property within the  
14 65 decibel day/night average sound level noise contour  
15 would increase by 4 acres.

16           If Pease is not chosen for the beddown of the  
17 KC-46A Tanker Aircraft, the KC-135 will remain at the  
18 base for the foreseeable future.

19           Again, I'd like to thank you for your attendance  
20 and your interest this evening. Please let me know if  
21 I can be of any further assistance either during or  
22 after tonight's formal proceedings conclude. With  
23 that, I will turn the hearing over to Mr. Andy Smith,

1 the environmental manager for the 157th Air Refueling  
2 Wing.

3 MR. SMITH: Thank you, Colonel Hutchinson. Good  
4 evening, ladies and gentlemen. Welcome to the public  
5 hearing for the Draft Environmental Impact Statement.  
6 As the Commander indicated, I am Mr. Andy Smith, and I  
7 serve as the environmental manager for the 157th Air  
8 Refueling Wing. As a member of the Air Refueling Wing  
9 and of the local community, I am very interested in  
10 what happens here as well. This is an important  
11 occasion in which to discuss this topic, and I  
12 appreciate your interest, your participation, and your  
13 comments.

14 The Draft Environmental Impact Statement  
15 evaluates impacts to 11 resources by the proposed  
16 action to include noise, air quality, safety,  
17 biological resources, and cultural resources. Other  
18 resources evaluated can be reviewed in the Draft  
19 Environmental Impact Statement. As a result of the  
20 draft environmental analysis, we do not expect the  
21 proposed action to have any significant impacts to any  
22 resources.

23 I will speak briefly to most of the resources I

19

1 must mentioned, however, more in-depth information is  
2 provided in the Draft EIS document for all 11  
3 resources.

4           The noise poster board shows baseline noise  
5 contours from existing KC-135 aircraft operations and  
6 proposed noise contours from KC-46A aircraft  
7 operations at Pease. The analysis was based on 8,040  
8 allocated flying hours for each unit, which is a  
9 conservative estimate, meaning that flying hours would  
10 most certainly be below that number for each  
11 alternative.

12           As you can see, the noise contours would  
13 increase slightly with an addition of 4 acres of  
14 uninhabited land being affected off the installation.  
15 Pease Air National Guard Station is located in a  
16 maintenance area for ozone, which is a criteria  
17 pollutant as designated by the Clean Air Act.  
18 Projected emissions from the proposed action would not  
19 be expected to exceed established air quality  
20 standards. Any increase in air emissions would be  
21 below the established thresholds for our area and  
22 would not be significant.

23           Under this alternative, minor construction and

1 renovation of facilities would be required, resulting  
2 in approximately 3 acres of temporary soil disturbance  
3 and 0.5 acre of new impervious surface. There would  
4 be no impacts to wetlands, floodplains, federally  
5 listed species, or cultural resources. In addition,  
6 the Air National Guard has initiated  
7 government-to-government coordination with all  
8 federally recognized tribes affiliated with the area.  
9 To date, from the responses we have received, no tribe  
10 has indicated that any traditional resources occur in  
11 the project area.

12 We look forward to your input provided from the  
13 public and affected communities as we proceed through  
14 the NEPA process. Once the requirements of NEPA are  
15 complete, the Air Force will make its final basing  
16 decision.

17 Thank you for your attention, and I will now  
18 turn the presentation over to Ms. Anne Rowe, the  
19 National Guard Bureau project manager for the  
20 Environmental Impact Statement, to discuss the NEPA  
21 process.

22 MS. ROWE: I will briefly summarize the NEPA  
23 process. The National Environmental Policy Act,

1 commonly referred to as NEPA, aids federal agency  
2 decision makers in determining the future course of  
3 federal actions. It's the objective of NEPA to ensure  
4 that the decision makers have the environmental  
5 information and public input to facilitate informed  
6 decisions.

7 The goal of preparing an Environmental Impact  
8 Statement is to support sound decisions throughout the  
9 assessment of potential environmental impacts, as well  
10 as involving the public in the process. The results  
11 of this analysis and other relevant factors will be  
12 considered before a decision is made by the Air Force  
13 on this proposal.

14 The Draft Environmental Impact Statement, or  
15 Draft EIS, which was made available for your viewing  
16 at a number of public locations beginning on February  
17 7, 2014, presents the findings and analysis of the  
18 proposed action and alternatives on the environmental  
19 criteria set forth by NEPA. Tonight's public hearing  
20 is the second of two public comment forums that  
21 provide the public an opportunity to comment on the  
22 scope and content of the Environmental Impact  
23 Statement. The first forum, called a scoping meeting,

1 was held at the Portsmouth Public Library and at other  
2 alternative locations in June of 2013.

3           Comments have also been solicited from local,  
4 state, and federal agencies that have jurisdiction  
5 over particular resources, such as air and water  
6 quality. That process began with the release of the  
7 Notice of Intent to Prepare an Environmental Impact  
8 Statement on May 17, 2013, and continues today with  
9 public and agency review of the Draft Environmental  
10 Impact Statement.

11           This hearing gives the potentially affected  
12 communities an opportunity to comment on the analysis  
13 that has been presented in the Draft Environmental  
14 Impact Statement.

15           The formal comment public -- the formal public  
16 comment period ends on March 24, 2014. Following this  
17 period, oral and written comments received from both  
18 the public and government agencies will still be  
19 reviewed by the Air Force and National Guard Bureau.  
20 We will continue to accept comments throughout the  
21 NEPA process. However, it is more difficult to give  
22 your comments the consideration they deserve as the  
23 process winds down closer to the release of the Final

1 Environmental Impact Statement, or Final EIS.

2           After all the comments on the Draft  
3 Environmental Impact Statement have been addressed,  
4 substantive comments will be reviewed and responded to  
5 in the Final EIS. The Final Environmental Impact  
6 Statement will be released to the public for a 30-day  
7 public -- for a 30-day period before a Record of  
8 Decision is signed by the Secretary of the Air Force  
9 or their designee. The Record of Decision is  
10 scheduled to be signed in June 2014.

11           This concludes the explanation of both the  
12 KC-46A beddown proposal as well as the NEPA process.  
13 I now return the program back to our hearing officer.

14           COLONEL MULDOON (Judge Advocate): When the  
15 hearing began, we did not have any questions asking  
16 for clarifications about the Draft EIS. If anyone has  
17 a question, I'd ask that they raise their hand at this  
18 point in time so a staff member can get you a question  
19 card to fill out.

20           And seeing that there are no hands raised, I  
21 would like to begin the formal comment portion of the  
22 hearing. I will call the speakers in the order in  
23 which they signed up, with any elected officials

1 having the opportunity to speak first.

2           So the court reporter can accurately capture  
3 your comments, please clearly state your full name and  
4 the full name of your organization you represent, if  
5 any. Do not provide any other personal information  
6 such as your home address or phone number. Your oral  
7 comments will be used to develop a transcript and  
8 permanent record of this meeting. Again, as a  
9 courtesy to those others who have registered to speak,  
10 please limit your comments to five minutes. This  
11 applies to all of our speakers. Keep in mind, you are  
12 welcome to submit written comments and there are no  
13 page limits. The Air Force will give equal weight to  
14 all comments whether they're oral, written, or both.

15           You do not have to speak for the full five  
16 minutes; however, if you choose to speak for the full  
17 five minutes, I will advise you when your five minutes  
18 are almost up. Following your comments, I will ask  
19 that you sit down so I may call on the next speaker.  
20 If you think you'll have more comments than you can  
21 present in the time allotted, make the most important  
22 comments first, and follow up by submitting the  
23 remainder of your comments in writing, if you wish.



25

1           Again, please understand there's no page limit  
2   to written comments. Equal weight will be given to  
3   both oral and written comments. They will all become  
4   part of the official record and will be included in  
5   the Final Environmental Impact Statement.

6           I would now like to begin. The first speaker is  
7   Mayor Bob Lister.

8           MAYOR LISTER: Thank you, sir. Welcome everyone  
9   to the City of Portsmouth and City Hall. My remarks  
10  will be brief, but I could not let this opportunity  
11  pass without again congratulating the New Hampshire  
12  Air National Guard, the staff, and the officers who  
13  are involved in the New Hampshire Air National Guard.  
14  So we welcome you all to the City of Portsmouth and  
15  congratulate you again. Thank you for the opportunity  
16  to -- provided for this public hearing. It's very  
17  important that our citizens hear about what's  
18  happening with the Environmental Impact Statement, and  
19  we certainly appreciate the audience and people who  
20  will watch this at another time.

21           I'd also like to just be able to mention that  
22  not only is this public hearing important, but because  
23  Portsmouth and the surrounding area has had a long

1 history of military presence, we're very proud to have  
2 this hearing tonight and very proud that there may be  
3 an opportunity for the KC-46A to be in the Portsmouth  
4 area, and certainly, because of the public hearing,  
5 taking into consideration the environmental impact on  
6 the City of Portsmouth and the surrounding area.

7 I urge all citizens to support this proposal, to  
8 support the New Hampshire National Guard as they have.  
9 We appreciate all that you're doing in our community.  
10 You are definitely part of our community. This is  
11 definitely a team effort, and we appreciate your  
12 presence. And we look forward to supporting you in  
13 your future endeavors, working with you, and being  
14 part of this new program. So thank you very much.

15 COLONEL MULDOON (Judge Advocate): Thank you,  
16 Mayor.

17 State Senator Martha Fuller Clark.

18 SENATOR CLARK: Thank you very much for the  
19 opportunity to speak, and thank you all for being here  
20 this evening. I have a letter that I would like to  
21 read into the record.

22 Dear Members of the National Guard Bureau, I am  
23 writing in support of bringing the Air Force's new

27

1 tankers, the KC-46, to the Pease Air National Guard  
2 base at the Pease Tradeport Center, Portsmouth, New  
3 Hampshire. I believe that the 157th Air Refueling  
4 Wing is ideally suited to be the first national guard  
5 unit in the country to field the KC-46. The 157th has  
6 established a track record of unparalleled excellence,  
7 winning the Air Force's Outstanding Unit Award 11  
8 times. And to those of you who are here from the  
9 unit, my congratulations and my awe.

10 In just the last two years, the Pease Air  
11 National Guard Base has reduced energy consumption by  
12 approximately 35 percent through facility modification  
13 and new construction projects. The KC-46, with its  
14 new technologically improved design based on the more  
15 fuel-efficient Boeing 767 airliner, will give Pease  
16 the opportunity to continue this trend and conserve  
17 our valuable natural resources.

18 The new tanker also adds increased cargo and  
19 aeromedical evacuation capabilities, which can provide  
20 potentially life-saving capabilities in national  
21 disasters and for overseas missions. Pease is the  
22 ideal location to provide such support to our nation,  
23 close to strategic refueling tracks for missions to

1 the Middle East, Europe, and Africa. Its exceptional  
2 location allows for missions to be shorter, saving  
3 millions in fuel costs, thereby providing an  
4 outstanding value for our country.

5 The 157th Wing is a vital aspect of the seacoast  
6 economy, generating revenue for small businesses and  
7 services. It is also popular with thousands who work  
8 at or around Pease. Currently, the Pease ANGB  
9 provides approximately \$135 million to the local  
10 economy. Bringing the KC-46 to Pease will add over  
11 100 new jobs and provide an additional 7 million in  
12 annual payroll to the region. It will also add 45  
13 million in military construction to the local economy.

14 Clearly, having the Air Force's number one  
15 acquisition, the KC-46, based here in New Hampshire  
16 will also help to ensure the continued vitality of  
17 Pease and the local seacoast communities for many  
18 years to come. I highly recommend to the committee  
19 the selection of Pease and the 157th Air Refueling  
20 Wing as an outstanding site for the bedding of the new  
21 KC-46 tankers.

22 Most sincerely, Martha Fuller Clark, State  
23 Senator, District 21.

29

1 Thank you.

2 COLONEL MULDOON (Judge Advocate): Thank you,  
3 Senator.

4 SENATOR CLARK: You're welcome.

5 COLONEL MULDOON (Judge Advocate): From the  
6 governor's office, Ms. Kerry McHugh.

7 MS. MCHUGH: My name is Kerry McHugh. I am here  
8 on behalf of Governor Hassan. I'm here to read a  
9 letter from the governor.

10 Dear Friends, I regret that I am not able to be  
11 with you in person for today's public hearing, but on  
12 behalf of the State of New Hampshire, I write to  
13 express my strong support for the beddown of the new  
14 KC-46A Aircraft at Pease Air National Guard Base in  
15 Newington, New Hampshire.

16 The Pease Air National Guard Base is the best  
17 location for the KC-46A Air Refueling Tankers. The  
18 base is strategically located on the East Coast of the  
19 United States, translating to considerable time and  
20 cost savings for all eastbound support operations. In  
21 addition, much of the infrastructure needed to  
22 successfully implement the KC-46A is already in place  
23 at Pease. This infrastructure includes the longest

1 Air National Guard runway and parking ramp in the  
2 Northeast, air traffic control, security, and customs  
3 and fire protection.

4           The 157th Air Refueling Wing and the 64th Air  
5 Refueling Squadron stationed at Pease are the best  
6 options to support the operation of the new KC-46A.  
7 The 157th Air Refueling Wing is a model unit made up  
8 of brave, skilled airmen who consistently exceed  
9 expectations in the participation of both military and  
10 homeland defense operations. Since their assignment  
11 to the 157th Air Refueling Wing in 2009, the 64th Air  
12 Refueling Squadron has fully integrated into the Wing  
13 and their performance has rated as outstanding.

14           Bringing the KC-46A Air Refueling Tankers to  
15 Pease will also benefit our seacoast communities and  
16 economy, bringing more jobs to the region and helping  
17 the base generate an even greater positive economic  
18 impact.

19           Our state has a proud tradition of military  
20 service dating back to the founding of the New  
21 Hampshire National Guard nearly 400 years ago. Today,  
22 the men and women of our Air National Guard continue  
23 this tradition of military service. Our New Hampshire

31

1 airmen and soldiers are true heroes who have proven  
2 their dedication and courage time and again.

3 The assignment of the KC-46A tankers to Pease  
4 will be good for the Air National Guard, the State of  
5 New Hampshire, and our economy. It is an honor to be  
6 selected by the Air Force to base the KC-46A tankers  
7 at Pease.

8 With every good wish, Margaret Wood Hassan,  
9 Governor.

10 COLONEL MULDOON (Judge Advocate): Thank you,  
11 Ms. McHugh.

12 From the Office of Senator Shaheen, Ms. Sherri  
13 Pierce.

14 MS. PIERCE: Thank you, sir. The senator  
15 regrets that she is unable to be here tonight, but she  
16 asked me to share this letter on her behalf.

17 Dear Friends, Thank you for the opportunity to  
18 comment on the basing of the Air Force's new KC-46A  
19 Refueling Tanker at Pease Air National Guard Base. I  
20 have been a strong advocate for Pease's selection as  
21 one of the first bases to locate this new tanker, and  
22 I am pleased to continue supporting this critical  
23 program.

1           Pease and the 157th Air Refueling Wing have been  
2     providing continuous air refueling coverage to  
3     critical combatant commands overseas since September  
4     11, 2001. The 157th currently flies eight KC-135  
5     Stratotanker aircraft and nearly 1,000 personnel  
6     support the mission on a continuing basis with  
7     distinction and pride. Pease's preliminary selection  
8     as one of the first locations for the KC-46A  
9     underscores the strong record of success.

10           Pease is the preeminent location for basing of  
11    the KC-46A based on its experienced personnel, open  
12    airspace, close partnership with an active associate  
13    unit, modern facilities, significant ramp space, long  
14    runway, cost effectiveness, and strategic location to  
15    support current and future requirements for the  
16    military. No other unit in the Northeast can provide  
17    the level of aircraft utilization more cost  
18    effectively than the 157th Air Refueling Wing.

19           In selecting Pease as one of the first locations  
20    for the new tanker, the Air Force has expressed its  
21    confidence that the personnel at Pease will continue a  
22    proud tradition of excellence and service with the  
23    new, state-of-the-art aircraft. I know the Pease



33

1 community will rise to meet the challenge of basing  
2 the KC-46A, and I stand ready to work with the U.S.  
3 Air Force, the Air National Guard, and community  
4 leaders to ensure a smooth transition to this new  
5 generation of tankers.

6 Sincerely, Jeanne Shaheen, United States  
7 Senator.

8 COLONEL MULDOON (Judge Advocate): Thank you,  
9 Ms. Pierce.

10 From Senator Ayotte's office, Mr. Bud Fitch.

11 MR. FITCH: Good evening. Thank you. I have a  
12 brief statement from the senator, and then we will  
13 provide for the record a copy of the joint letter from  
14 Senator Shaheen and Senator Ayotte that was sent  
15 yesterday to Lieutenant General Stanley Clarke, the  
16 Director of the Air National Guard.

17 Senator Ayotte would like to put the following  
18 statement into the record: I want to thank the  
19 Environmental Impact Statement panel for coming to  
20 New Hampshire to learn more about Pease and the  
21 readiness of the 157th Air Refueling Wing to host the  
22 KC-46A. I also want to thank the members of the  
23 general public for attending this important hearing.

1 I will regret that votes in Washington, D.C.,  
2 precluded me from being with you this evening. I want  
3 to express my strongest possible support for bringing  
4 the KC-46A to Pease Air National Guard Base.

5 As Senator Shaheen and I stated in our letter  
6 yesterday to the Director of the Air National Guard,  
7 Pease boasts an optimal strategic location, a  
8 top-performing air refueling unit, an absence of  
9 environmental concerns, and an incredibly supportive  
10 community and congressional delegation. I look  
11 forward to working with the Air National Guard to  
12 bring the KC-46A to Pease.

13 And I will submit for the record the joint  
14 letter from the two senators.

15 COLONEL MULDOON (Judge Advocate): Thank you.  
16 Thank you, Mr. Fitch.

17 From the Office of United States Representative  
18 Shea-Porter, Mr. Josh Denton.

19 MR. DENTON: Thank you, Colonel. The  
20 Congresswoman couldn't be here tonight because she's  
21 in D.C. today, but she asked me to read this letter on  
22 her behalf.

23 Dear Friends, Thank you for inviting me to the

35

1 public hearing on the Draft Environmental Impact  
2 Statement for the KC-46A Pease basing proposal. I  
3 regret that I cannot be with you in person this  
4 evening.

5 I would like to express my continued support for  
6 the basing of the KC-46A Refueling Tanker at Pease Air  
7 National Guard Base. I have been a strong advocate  
8 for Pease because it is the ideal candidate for the  
9 KC-46A due to its proximity to operational and  
10 training refueling tracks, its aircraft-related  
11 infrastructure, its training flight simulator, and its  
12 active duty association. In addition, the 157th Air  
13 Refueling Wing at Pease has received the prestigious  
14 Air Force Outstanding Unit Award 11 times, most  
15 recently last year. I believe that having the KC-46A  
16 Refueling Tanker at Pease will be good for our nation  
17 and for our area.

18 Thank you to the National Guard Bureau for  
19 organizing, and City of Portsmouth for hosting, the  
20 Environmental Impact Statement public hearing. I  
21 would also like to thank all of the members of the  
22 National Guard here tonight for your dedication to our  
23 nation.

1           Sincerely, Carol Shea-Porter, Member of  
2 Congress.

3           COLONEL MULDOON (Judge Advocate): Thank you,  
4 Mr. Denton.

5           From the Office of United States Representative  
6 Kuster, Mr. Sean Downey.

7           MR. DOWNEY: Thank you, sir. Congresswoman  
8 Kuster regrets that she couldn't be here this evening,  
9 but she asked me to come and read this letter on her  
10 behalf.

11          Dear Friends, It is an honor to join my  
12 colleagues this evening in endorsing the 157th Air  
13 Refueling Wing and their home at Pease Air National  
14 Guard Base as the ideal location for the new KC-46A  
15 Refueling Tanker. In recent months, I have repeatedly  
16 enjoyed the opportunity to share this record of  
17 excellence that defines these guardsmen and their  
18 active duty component counterparts.

19          The 157th has long been a point of pride for us  
20 here in the Granite state. It is not an accident that  
21 this past year marked the 11th time that this unit has  
22 been recognized with the Air Force's Outstanding Unit  
23 Award. Their record of efficiency and effectiveness

1 is unparalleled by their peers in other states, and  
2 their ability to rise to the challenge of these  
3 difficult times is yet another reminder of their  
4 exceptional qualifications.

5         In addition to the exemplary men and women who  
6 would be responsible for this new aircraft, Pease  
7 itself boasts a number of strategic advantages. Its  
8 proximity to critical refueling tracks for United  
9 States aircraft heading to the Middle East, Europe,  
10 and Africa, and its massive fuel storage and aircraft  
11 parking capabilities would ensure the Air Force saves  
12 time and money as we look towards a new age of  
13 readiness.

14         There is no doubt in my mind that New  
15 Hampshire's guardsmen have created an ideal  
16 environment for the KC-46A. Whether assessing their  
17 record of excellence or the strategic advantages of  
18 Pease, I cannot imagine an outfit more suited for this  
19 important assignment.

20         I want to commend the New Hampshire Air National  
21 Guard on their continued service to their state and  
22 country, and I want to ensure the Air Force knows that  
23 when they are looking for the best, they need look no

1 further than the men and women of the 157th Air  
2 Refueling Wing.

3 Sincerely, Ann McLane Kuster, Member of  
4 Congress.

5 COLONEL MULDOON (Judge Advocate): Thank you,  
6 Mr. Downey.

7 Ms. Renee Plummer.

8 MS. PLUMMER: Good evening. I am Renee Plummer,  
9 and I am here. And I would have flown all over the  
10 world just to be here for you all.

11 When the former Pease Air Force Base closed down  
12 in the early '90s, many locals felt that this area  
13 would turn into a wasteland. However, we at 2  
14 International saw an opportunity to try and cultivate  
15 a successful business-friendly area which could  
16 provide a boom to the local economy. But while we  
17 have achieved our goal to help transform Pease Air  
18 Force Base into the thriving Pease International  
19 Tradeport, we must acknowledge that 157th Air  
20 Refueling Wing has been an integral part of that  
21 success.

22 Every day we know that the tankers are up there  
23 refueling aircraft on their missions to keep us

39

1 safe -- see, this is where I get very emotional for  
2 what you do -- and we are happy to drive to work  
3 side-by-side with the Air National Guard's women and  
4 men here at Pease. And because the existing ANG wing  
5 is already here, all the facilities and  
6 infrastructures are in place to receive the new KC-46A  
7 plane. Logistically, this is a no-brainer, and  
8 economically, this would have a wonderful impact on  
9 the area by creating new jobs, and to me, the math is  
10 pretty simple.

11 We have been fortunate enough to see Pease  
12 Tradeport become a commercial success, but it would  
13 not be the same place without those Air National Guard  
14 planes and the people who make them work so well. I  
15 fully support the efforts of the Pease Air National  
16 Guard Base to acquire the KC-46A Pegasus Tanker, and I  
17 look forward to continuing our partnership in the  
18 future.

19 Renee Plummer. Thank you.

20 COLONEL MULDOON (Judge Advocate): Thank you,  
21 Ms. Plummer.

22 Mr. Doug Bates.

23 MR. BATES: My name is Doug Bates. I'm

1 president of the Portsmouth Chamber of Commerce. I'm  
2 here on behalf of the Greater Portsmouth Chamber of  
3 Commerce. It is the mission of the Greater Portsmouth  
4 Chamber to advocate for members on the issues of  
5 community concerns effecting business. This is  
6 certainly one of them. We have many fundamental  
7 objectives, but we provide leadership and economic  
8 development in the Portsmouth area and in the  
9 seacoast. And we try to effectively influence  
10 decisions about legislative regional interests to our  
11 members, some 800 members.

12 We have a long history as an advocate for Pease  
13 Air National Guard and believe firmly that this base  
14 is critical not only to our nation's security but also  
15 to our region's economic well-being. As such, we  
16 strongly support the selection of Pease in Portsmouth,  
17 New Hampshire, as the base for the Air Force's new  
18 KC-46A Midair Refueling Tankers. Not only is Pease  
19 well-positioned and prepared to welcome these new  
20 aircraft, but the selection of Pease would have  
21 tremendous economic and other benefits to the region.

22 First, the selection of Pease would bring much  
23 needed new jobs to our region, including 70 full-time



41

1 and 50 part-time jobs, resulting in an additional \$7  
2 million to the local payroll. And you've heard  
3 earlier that they already contributed quite a bit, so  
4 it's always helpful to get a little bit more.

5 In addition, if Pease is selected, our  
6 country's -- our region's economy and local  
7 communities will benefit from 45 million in military  
8 construction. Of course, the selection of Pease would  
9 also bring a variety of other benefits to our region,  
10 including enhanced FEMA Region 1 response and  
11 increased cargo and aeromedical evacuation capacity.

12 We are very proud as the Greater Portsmouth  
13 Chamber to add our voice to those of Governor Maggie  
14 Hassan and all of the entire New Hampshire  
15 Congressional delegation in supporting the selection  
16 of Pease Air National Guard Base as the new home of  
17 the KC-46A. Thank you very much.

18 COLONEL MULDOON (Judge Advocate): Thank you,  
19 Mr. Bates.

20 Mr. Ron Snow.

21 MR. SNOW: Thank you. My name is Ron Snow, and  
22 I'm the director of marketing at the Brain Injury  
23 Association of New Hampshire. And one of my jobs

42

1    there is I'm also the associate director of the  
2    Service Credit Union Boston/Portsmouth Air Show, and I  
3    just wanted to speak upon our very strong support of  
4    Pease getting the KC-46. As you know, the air show is  
5    a pretty complicated process, whereas, you might know,  
6    it's a very complicated process to put it together.  
7    Our last air show, we had over 60,000 people attend  
8    and without the National Guard support, there is no  
9    way we'd be able to ever make it happen. The air  
10   show -- the proceeds from the air show went to over 41  
11   local charities and -- and without them, there's  
12   just -- again, there's no way we'd be able to exist.

13           One story that I'd like to pass along about the  
14   character of the folks at Pease is on the Friday of  
15   the air show, we do a specialty show for the Make A  
16   Wish kids, and it gets a little hectic on that Friday  
17   morning, and we're supposed to have some folks come  
18   and do face painting for some of the kids. And I  
19   looked over and I saw two guardsmen standing by the  
20   fence at the flight line, and I went over to them and,  
21   I go, hey, could you guys come do camo paint for a  
22   bunch of these kids? And they're, like, absolutely.  
23   They came over, they spent three hours painting up

43

1 these kids' faces. And kind of the funny story is,  
2 like, have you guys ever put camo paint on? And  
3 they're, like, no, we've never done that. So okay.  
4 But just do your best. And when I saw the faces of  
5 those kids, I knew that we were dealing with some very  
6 special people. And I certainly want to -- you know,  
7 from the air show side, we want to certainly thank you  
8 and wish you the continued support. Thank you.

9 COLONEL MULDOON (Judge Advocate): Thank you,  
10 Mr. Snow.

11 Ms. Karen Benedetti.

12 MS. BENEDETTI: Thank you. My name is Karen  
13 Benedetti. I'm the vice president of marketing at  
14 Service Credit Union. Tonight, I am reading comments  
15 from Gordon Simmons, president and CEO of Service  
16 Credit Union.

17 Good evening, all. I am sorry I could not be  
18 present for this very important community forum. I'm  
19 Gordon Simmons, the president and CEO of Service  
20 Credit Union and secretary/treasurer of the board of  
21 directors. I joined the Credit Union in 1974,  
22 managing operations in Germany, then relocated to  
23 Portsmouth, New Hampshire, in 1995 to serve as

1 president and CEO, my current position.

2 I have served as director and chairman of the  
3 Defense Credit Union Council, Chairman of the Armed  
4 Forces Financial Network, and have spent many years in  
5 direct contact with Air Force and Army command  
6 headquarters, military community leaders and  
7 commanders, as well as Department of Defense liaisons  
8 in Washington, D.C.

9 And I am a long-term resident of Portsmouth, New  
10 Hampshire. Thus, I am keenly aware of the role of the  
11 military in protecting our great nation as well as  
12 assimilating into the community at large.

13 Service Credit Union opened its doors on Pease  
14 Air Force Base in 1957. Today we continue to serve  
15 Pease, communities across New Hampshire, and military  
16 worldwide. I and my board of directors are keenly  
17 aware of the importance of a robust refueling  
18 capability so that the U.S. forces would not be  
19 limited in their ability to provide a global reach.  
20 The new KC-46 Tanker would add increased cargo and  
21 aeromedical evacuation capacities, providing potential  
22 life-saving capabilities in national and international  
23 disasters.

45

1           The U.S. Air Force has identified Pease Air  
2       National Guard Base, home of the 157th Air National  
3       Guard of the New Hampshire Air National Guard -- sorry  
4       about that -- as a preferred alternative for the KC-46  
5       beddown based on an environmental analysis,  
6       operational analysis, site surveys, and military  
7       judgment factors. Pease is the ideal location to  
8       provide support to the nation given its proximity to  
9       critical refueling tracks for missions in the Middle  
10      East, Europe, and Africa. The location allows for  
11      missions to be shorter, saving time and money, thus  
12      resulting in outstanding value for the country.

13           We under -- we also understand that the beddown  
14      for the Pegasus needs to be sound, along a whole host  
15      of environmental impacts. As such, we have reviewed  
16      the requirements of the environmental impact analysis  
17      process which will drive the Air Force's final basing  
18      decision.

19           After a review of the Environmental Impact  
20      Statement, Service Credit is pleased to support the  
21      beddown of the KC-46 Aircraft to Pease Air National  
22      Guard based on no measurable negative impact to the  
23      community, including noise, air quality, safety, soil

1 and water, biological resources, cultural resources,  
2 land use infrastructure and transportation, and  
3 hazardous materials and waste. In fact, any new  
4 facilities and additions associated with this project  
5 will be implemented with more energy-efficient  
6 standards and utility systems than are currently in  
7 place.

8 Socioeconomically, there would be an uptick in  
9 economic activity associated with the construction  
10 activities at the 157th Air Refueling Wing  
11 installation, which would provide short-term economic  
12 benefits to the local economy.

13 The Pease Air National Guard Base is noted as  
14 providing approximately 135 million to the local  
15 economy. The Air National Guard expects the Pegasus  
16 coming to Pease will add an additional 45 million in  
17 construction and 7 million to annual payroll to  
18 workers within the region.

19 The KC-46 mission would add an additional 171  
20 military positions, a 12 percent increase to existing  
21 157 personnel. The community would welcome 233 family  
22 members and many purchasing homes in the surrounding  
23 communities.

47

1           The Air National Guard Base -- the Pease Air  
2       National Guard Base is the most logical base for the  
3       beddown of Pegasus and will ensure that Pease remains  
4       a leader in our nation's defense for many years to  
5       come.

6           Thank you.

7           COLONEL MULDOON (Judge Advocate): Thank you,  
8       MS. BENEDETTI.

9           Mr. Bill Hopper.

10          MR. HOPPER: Thank you. My name is Bill Hopper.  
11       I'm the airport manager with the Pease Development  
12       Authority here in Portsmouth and Newington, and I just  
13       want to speak on behalf of the support of Pease  
14       Development Authority and our support of the KC-46  
15       Tanker program. The New Hampshire Air National Guard  
16       predates the PDA and has been a constant support and  
17       an extremely important presence in the Tradeport and  
18       seacoast communities. Many of the successes at the  
19       Portsmouth Air National Airport at Pease were largely  
20       possible because of the PDA and New Hampshire Air  
21       National Guard partnership.

22          The KC-135R has been one of the most reliable  
23       assets in the history of the U.S. military, and I look

1 forward to the continuation of the reliability and  
2 future generations with the KC-46A. Pease is proud to  
3 be an ideal location with the optimum facilities for  
4 the U.S. military's tanker mission, and we are proud  
5 to own and operate the airport that will host the  
6 first rollout of the Guard's KC-46As. Thank you.

7 COLONEL MULDOON (Judge Advocate): Thank you,  
8 Mr. Hopper.

9 Mr. John Frink.

10 MR. FRINK: Yes, I'm John Frink. I represent  
11 only myself, my bees, my vegetable garden, my animals.  
12 I have a very small farm that's very close to the  
13 north end of the runway, and I would like to comment  
14 on the environmental impact that Newington has had  
15 because of the installation.

16 I do respect and admire the Air National Guard.  
17 They are good neighbors, far better than what we had  
18 when we had Pease Air Force base. You only have to  
19 get a little bit close to the Newington side of the  
20 air base and you can see the pollution mediation  
21 measures that have been taken and you see the  
22 monitoring wells and things are not what they were.  
23 But that is neither here nor there.



1           I would like to relate a story just for my  
2           credibility here. I attended a town meeting in  
3           Newington when the town was being asked to purchase a  
4           conservation easement on property owned by Ghuruda  
5           Khalsa, which is adjacent to the north boundary of  
6           Pease. And there was a person, a resident in  
7           Newington who was a former Air National Guard member  
8           and who spoke up, and he said, you know, before the  
9           town really gets too involved in purchasing this  
10          easement, it would probably be a good idea to have an  
11          environmentalist come out and look at the property  
12          because when I was at the Air National Guard, we  
13          dumped a lot of fuel on that property. Now, I know  
14          it's a policy, although I have not personally called  
15          the Air National Guard, to deny jettisoning of fuel,  
16          however, I get up in the morning and certain  
17          atmospheric conditions, and there's a very strong  
18          smell of kerosene.

19          Now, I've heard that this is because of the  
20          warm-up process and prevailing winds. I've also heard  
21          that it's necessary to jettison fuel in order to land  
22          or take off or something. But it's distressing.

23          It's perhaps better that I would ask the

1 question rather than try to make a formal statement  
2 here, and the question would be, with the new tankers,  
3 which I'm sure are probably environmentally more  
4 friendly than the KC-135s, given that the 8 aircraft  
5 would be replaced by 12, would there be more of this  
6 jet fuel in the air over my house? I have honey bees  
7 that aren't doing well. That probably is the case  
8 almost everywhere. I have a vegetable garden, which  
9 is pretty much organic, and I think it's important to  
10 really consider the environment.

11 The City of Portsmouth and State of New  
12 Hampshire have always been very supportive of the  
13 military base there, but the people in Newington are  
14 the ones that really experience the downside. I have  
15 TCE in the water that runs through my property. I  
16 don't have to drink that water, but there are  
17 environmental impacts, and I just would like to be  
18 reassured that the amount of fuel in the air vapor is  
19 not going to increase due to the increased aircraft.

20 Thank you very much.

21 COLONEL MULDOON (Judge Advocate): Thank you,  
22 Mr. Frink. Dr. Melvin Prostkoff.

23 DR. PROSTKOFF: Thank you. My name is Dr.

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1 Prostkoff. I've been a physician here on the seacoast  
2 for 30 years now. And when I first came, I was the  
3 neurosurgeon consultant for the military hospital at  
4 Pease, and also, I got involved with the ESGR, the  
5 Employer Support Group for the Guard and Reserve, and  
6 I work with the members of the Air National Guard unit  
7 here. I'm very proud to be involved with, although  
8 I've never worked for the National Guard in New  
9 Hampshire, and I strongly believe and support the  
10 KC-46A coming here for beddown at Pease.

11 The -- since 1991, I've been working on the  
12 joint civilian military mass casualty incident drills,  
13 and we run them every three years in conjunction with  
14 the Pease Developmental Authority, mandated by the FAA  
15 and their civilian military involvement. There's been  
16 nothing but excellence in everything that I see and  
17 everything that I do with the Air National Guard.  
18 You've heard all the other speakers talk about  
19 environmental issues, strategic issues, the -- what  
20 KC-46A will do to help with the economy here, and  
21 everything else that's positive. But as a physician,  
22 I talk about the softer side. The other environmental  
23 issues. When I see a patient, I don't just operate on

1     an X-ray. I ask -- I do a physical exam, I ask  
2     questions, I get a social history, a family history,  
3     because that determines what you really are doing, why  
4     you're doing the operation. Similarly, I look at the  
5     whole environment, and this just has to be a fabulous  
6     place for the KC-46A to come in.

7             The involvement of the Air National Guard and  
8     the entire New Hampshire National Guard is integral in  
9     the community of New Hampshire and has been for  
10    hundreds of years. And they are strong leadership,  
11    and the leadership has always been very forthcoming  
12    and very, very forward-thinking. We have simulators,  
13    we have room for the building for the simulator, for  
14    the bigger simulator that's going to house the KC-46A  
15    simulator. So a lot of training will be taking place  
16    in the simulator and not in the air. Plus, the  
17    aircraft will not always be bedded down here. They  
18    will be overseas.

19            Their safety is fantastic. I'm a pilot. I fly  
20    out of a little airport called Little Brook five miles  
21    from here. Never been a problem. The people in our  
22    control tower here are Air National Guard members and  
23    civilian members with the Department of Defense with

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1 much more training for handling large military  
2 aircraft and civilian aircraft together than you get  
3 at a normal airport with just FAA control tower  
4 members.

5 The collaboration of civilian and military  
6 activities -- we've got great neighbors here. All our  
7 -- everybody who lives here has a neighbor who's a  
8 member of the National Guard, either the Air Guard or  
9 the New Hampshire Guard, and we're all here happy on  
10 the seacoast. What we feel is that it's really,  
11 really important, and as John Q. Citizen, I urge,  
12 support, the beddown of the KC-46A.

13 I'm going to send a formal letter to the Joint  
14 Base Andrews in support. I wanted to speak  
15 extemporaneously today. Thank you.

16 And one more thing. This book, "Granite Wings:  
17 History of the New Hampshire Air National Guard," came  
18 out in 1998 for the first 50 years. I think with  
19 everything that's taken place between 1998 and now,  
20 when we end up getting the KC-46A here, it'll be time  
21 for Volume II. Thank you.

22 COLONEL MULDOON (Judge Advocate): Thank you,  
23 Dr. Prostkoff. It's been an hour, so we're going to

1 take a break, 10-minute break. Coincidentally, that  
2 is all the speakers who have signed up. So if there  
3 is anyone who wanted to speak and hadn't signed up, if  
4 you could please check in at the registration desk and  
5 sign in, and we'll come back in 10 minutes to hear  
6 those additional speakers or to wrap up tonight's  
7 program.

8 (A short break was taken.)

9 COLONEL MULDOON (Judge Advocate): During the  
10 break -- excuse me, this hearing is reconvened.  
11 During the break, we did not get any additional  
12 requests to be heard in the public portion of this  
13 hearing, so that concludes all of our commentators.

14 This evening's goal was to provide you with open  
15 communication and accurate information to ensure your  
16 informed participation in the NEPA process. I hope  
17 that we have achieved that goal. Please feel free to  
18 visit the information booth and ask any additional  
19 questions that you may have regarding this proposed  
20 action. You have an opportunity, during the formal  
21 comment period, ending March 24, 2014, to provide  
22 written comments. Please stop by the registration  
23 booth to get any additional materials you may need.

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1 Thank you, and have a good evening.

2 (Hearing concluded at 7:16 p.m.)

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1 C E R T I F I C A T E .

2 I, Michelle Perrier Cole, do hereby certify that the  
3 foregoing transcript is a true and accurate  
4 transcription of the within proceeding, to the best of  
5 my knowledge, skill, ability, and belief.

6 THE FOREGOING CERTIFICATION OF THIS TRANSCRIPT DOES  
7 NOT APPLY TO ANY REPRODUCTION OF THE SAME BY ANY MEANS  
8 UNLESS UNDER THE DIRECT CONTROL AND/OR DIRECTION OF  
9 THE CERTIFYING REPORTER.

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13 Michelle Perrier Cole, LCR

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TRANSCRIPT OF PROCEEDINGS  
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AIR NATIONAL GUARD PUBLIC HEARING  
DRAFT ENVIRONMENTAL IMPACT STATEMENT  
FOR THE SECOND MAIN OPERATING BASE BEDDOWN  
OF THE KC-46A TANKER AIRCRAFT

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TRANSCRIPT OF PROCEEDINGS  
held on Tuesday, February 25, 2014, at the Pittsburgh  
Airport Marriott, 777 Aten Road, Coraopolis,  
Pennsylvania 15108, commencing at 5:00 p.m.

\* \* \* \* \*

PANEL PRESENT:  
Colonel Mark Allred, Hearing Officer  
Colonel Edward Metzgar, Wing Commander  
Colonel Thomas Hess, Maintenance Commander  
Lt. Col. John Tower, Environmental Representative  
Major Karen Bogdan, Public Affairs  
Anne Rowe, Air National Guard

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P R O C E E D I N G S

(6:05 o'clock p.m.)

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4 MAJOR BOGDAN: Good evening, ladies and  
5 gentlemen, and welcome to the public hearing for  
6 the Draft Environmental Impact Statement for the  
7 Second Main Operating Base Beddown of the KC-46A  
8 Tanker Aircraft.

9 I am Major Karen Bogdan, with the 171st Air  
10 Refueling Wing's Public Affairs Office, located  
11 in Pittsburgh, Pennsylvania.

12 Please enjoy the refreshments provided.  
13 Restrooms are outside in the lobby, and smoking  
14 in the facility is prohibited.

15 Before starting the formal portion of  
16 tonight's hearing, I ask that cell phones be  
17 turned off or placed in the silent mode. During  
18 the proceedings, please do not interrupt the  
19 speakers, and please be respectful to those  
20 providing oral comments. We will do our best to  
21 give everyone an opportunity to speak in the  
22 time that we have.

23 Colonel Mark Allred, Judge Advocate, will  
24 now begin the formal portion of tonight's  
25 hearing.

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1 COLONEL ALLRED: Good evening, and thank  
2 you, Major Karen Bogdan. I am Judge Colonel  
3 Mark Allred and I am a Chief Trial Judge of the  
4 United States Air Force from Joint Base Andrews,  
5 Maryland.

6 I'd like to make clear from the outset that  
7 I'm here in my capacity as a federal judge,  
8 solely to act as a moderator in this hearing.

9 The United States Trial Judiciary is an  
10 independent organization. I do not work for, or  
11 with, anyone in this room. I am not a member of  
12 this command or assigned to this installation.  
13 I report directly to the Chief Trial Judge of  
14 the United States Air Force and to the Judge  
15 Advocate General of the Air Force. I have had  
16 no involvement with the preparation of this  
17 proposed action or the Environmental Impact  
18 Statement. I have not rendered legal advice or  
19 assistance with respect to this action. I'm  
20 here tonight to serve as an independent public  
21 hearing officer regarding the Draft  
22 Environmental Impact Statement. I am  
23 responsible for providing everyone an  
24 opportunity to comment tonight on the proposed  
25 action, alternatives, and associated

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1 environmental analysis. This public hearing  
2 provides you with the formal opportunity for  
3 comment. I do not make any recommendation or  
4 decision on whether the proposed project should  
5 be continued, modified, or abandoned or how the  
6 Environmental Impact Statement should be  
7 prepared. Therefore, during the public comment  
8 portion of this hearing, I urge you to direct  
9 your comments to the individuals on our panel.

10 The purpose of this public hearing is to  
11 provide you with an opportunity to comment on  
12 the findings of the Draft Environmental Impact  
13 Statement. More importantly, this hearing is a  
14 formal opportunity for you to get involved in  
15 the NEPA process. This hearing is scheduled to  
16 conclude at 8:00 p.m., but, if necessary, will  
17 continue until all comments have been received.  
18 This formal session may end before 8:00 p.m., if  
19 there are no more comments. However, the  
20 overall hearing, including materials to be  
21 viewed and discussion with team members  
22 individually, will continue until 8:00 p.m.,  
23 unless all interested parties have left the  
24 meeting.

25 If, following the presentation, any members

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1 of the audience have questions regarding  
2 clarification of any points you may not have  
3 understood, you may fill out a question card,  
4 which can be found at the registration desk or  
5 on several tables scattered throughout the room,  
6 or you may raise your hand now and someone will  
7 bring a card to you.

8 Once you have filled out your question on  
9 the card, please raise your hand again and one  
10 of our staff will collect it from you. Only  
11 questions regarding clarification of the topics  
12 presented will be entertained. General comments  
13 on the action will not be read by our panel, but  
14 you may present your comment orally later in  
15 this hearing or submit it on one of our comment  
16 cards found throughout the room.

17 We will take a ten minute break to allow  
18 Colonel Metzgar, the 171st Air Refueling Wing  
19 staff, National Guard Bureau staff, and the  
20 environmental consultants to review any  
21 questions submitted and identify the best person  
22 to answer each.

23 After the break, we will answer any  
24 questions we have received on the question cards  
25 from the audience. Once questions have been

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1 answered, members of the audience who checked  
2 the box on their registration cards indicating  
3 their desire to provide oral comments will be  
4 asked to come forward.

5 Registration cards were available at the  
6 registration table as you came in. If you have  
7 not filled out a card or indicated your desire  
8 to speak and wish to do so, please raise your  
9 hand and a card will be provided to you now.

10 In addition, there are materials at the  
11 door describing the official Air National Guard  
12 proposal, the description of the proposed action  
13 and alternatives, and information on locations  
14 where you can review the draft Environmental  
15 Impact Statement after tonight.

16 To ensure that all interested citizens have  
17 an opportunity to speak, I will limit the  
18 comments to ten minutes per person. If time  
19 allows after everyone has an opportunity to  
20 provide their comments, you may have more time.  
21 You will only be allowed to comment when your  
22 name is called. Elected officials, individuals  
23 representing organizations will be called upon  
24 first.

25 A court reporter is recording this

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1 proceeding for the record. We will take a ten  
2 minute break every hour to allow the court  
3 reporter to take a break.

4 At this time, I would like to introduce and  
5 recognize one public official at this hearing,  
6 Kaitlin O'Connor from the office of  
7 Representative Tim Murphy.

8 Apparently, we also have Mr. Daniel Alwine  
9 from Senator Matt Smith's office.

10 As mentioned earlier, restrooms are located  
11 in the lobby outside this room, and refreshments  
12 can be found near the check-in desk.

13 Throughout this hearing, I ask that you  
14 keep in mind that this public hearing is not a  
15 debate, or any type of vote on the Draft  
16 Environmental Impact Statement, nor is it  
17 primarily designed as a question and answer  
18 session, although legitimate, clarifying  
19 questions may be asked.

20 At the conclusion of this hearing, you may  
21 discuss the findings of the Draft Environmental  
22 Impact Statement in greater detail with the  
23 staff members from the 171st Air Refueling Wing,  
24 National Guard Bureau, and the consultant's  
25 technical representatives.

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1           If you do not wish to provide oral  
2           comments, written comments will be accepted and  
3           will be given equal consideration. Even if you  
4           do make an oral statement, you are welcome to  
5           provide a written statement to reaffirm the  
6           comments you made and any additional comments  
7           you would like to make.

8           Written comments should be sent to the  
9           National Guard Bureau at the address printed on  
10          the comment form that you filled out, or on the  
11          website. The address is also provided on the  
12          comment sheets.

13          All relevant, substantive comments will be  
14          included in the administrative record and will  
15          be addressed in the Final Environmental Impact  
16          Statement. The formal comment period for the  
17          Draft Environmental Impact Statement ends on  
18          March 24, 2014. It is very important for you to  
19          realize that the Pennsylvania Air National  
20          Guard and the National Guard Bureau will be open  
21          and responsive to your comments and concerns  
22          throughout the NEPA process.

23          It is a requirement to inform you that  
24          under the Privacy Act of 1974, your name,  
25          address, and comments, if provided during this

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1 NEPA process, will be used to compile mailing  
2 lists for sending project reports, brochures and  
3 other information concerning the Environmental  
4 Impact Statement to those individuals and groups  
5 who might be interested; forwarded to federal,  
6 state, and local agencies and elected officials.

7 The addresses of private individuals  
8 submitting comments will not, repeat, will not,  
9 be published in documents released to the  
10 public.

11 Failure to provide the information  
12 requested would prevent delivery of documents  
13 and notification of further developments.  
14 However, documents are available on the project  
15 website, and in select libraries, with locations  
16 published in local newspapers.

17 Now, before we proceed with the  
18 presentation, if you have not reviewed a copy of  
19 the Draft Environmental Impact Statement, copies  
20 are available for you to review while in  
21 attendance at this hearing at each of the  
22 information booths. Further, you may pick up a  
23 CD with the document on it at the check-in desk.  
24 There is also a list of locations where the  
25 Environmental Impact Statement is provided for

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1 public review after this meeting in the  
2 informational handouts. If you did not receive  
3 other informational materials that were  
4 available at the entrance, please raise your  
5 hand and someone will provide them to you.

6 At this point, I will turn this over to  
7 Colonel Metzgar, the Commander for the 171st Air  
8 Refueling Wing.

9 COLONEL METZGAR: Thank you, Your Honor.

10 Good evening. My name is Colonel Edward  
11 Metzgar, and I am the Wing Commander for the  
12 Pennsylvania Air National Guard's 171st Air  
13 Refueling Wing at the Pittsburgh International  
14 Airport. On behalf of the Pennsylvania Air  
15 National Guard, I want to welcome all of you to  
16 this important public hearing regarding the  
17 Draft Environmental Impact Statement for the  
18 proposed beddown of the KC-46A tanker aircraft.  
19 It is our goal this evening to provide you with  
20 information about the proposed aircraft beddown  
21 and the National Environmental Policy Act,  
22 commonly referred to as NEPA, and to ensure your  
23 maximum participation and understanding of this  
24 process.

25 I would like to introduce you to

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1 individuals who are here this evening to assist  
2 in answering questions about the aircraft  
3 conversion and to facilitate your participation  
4 in commenting on the findings of the Draft  
5 Environmental Impact Statement.

6 You have already met Colonel Mark Allred,  
7 Judge Advocate, from Headquarters Air Force,  
8 Joint Base Andrews, Maryland. He will be  
9 presiding over this evening's hearing.

10 Next we have Lt. Col. John Tower, the 171st  
11 Air Refueling Wing's environmental manager, who  
12 will provide you with an overview of the  
13 proposed action and alternatives; and Anne Rowe,  
14 from the National Guard Bureau, who will be  
15 explaining some key considerations regarding the  
16 National Environmental Policy Act.

17 We also have a number of other individuals  
18 who have been involved in the development of the  
19 Environmental Impact Statement. They are from  
20 the Pennsylvania Air National Guard, the  
21 National Guard Bureau, and Cardno TEC, our  
22 environmental consultants. They will be  
23 available after the current formal session to  
24 answer questions and to help facilitate this  
25 process. You will find that any member in

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1 uniform or with an EIS name tag can either  
2 answer your questions or direct you to the right  
3 individual to answer your questions.

4 The greater Pittsburgh community is  
5 important to the 171st Air Refueling Wing, and  
6 community input is valuable to the environmental  
7 analyses, Pittsburgh International Airport is  
8 the current home of the 171st Air Refueling  
9 Wing. Many of our current, as well as retired,  
10 members live in the Pittsburgh area. We are  
11 part of this community.

12 Many of you have been consistently  
13 supportive of the military and of the 171st Air  
14 Refueling Wing. This community helped foster  
15 the development of the Pennsylvania Air National  
16 Guard as well as the 171st Air Refueling Wing  
17 over the years. This support is and has been  
18 deeply appreciated. Like you, our members live  
19 and work in this community and care deeply about  
20 its future. This is home to us all.

21 The proposed action is for the Air Force to  
22 replace a portion of the existing KC-135 aerial  
23 refueling fleet with the KC-46A, which will be a  
24 new aircraft to the Air Force's fleet. As such,  
25 the Air Force plans to identify locations for

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1 the beddown of a formal training unit, also  
2 known as FTU, and the First Main Operating Base,  
3 also known as MOB 1, which will both be led by  
4 active duty units. This has been the subject of  
5 a separate Environmental Impact Statement and is  
6 not a part of this discussion tonight. The Air  
7 Force will also beddown the KC-46A at a second  
8 Main Operating Base, also known as MOB 2, which  
9 will be led by an Air National Guard unit. This  
10 hearing is regarding the second Main Operating  
11 Base beddown only, as the FTU and MOB 1 beddown  
12 are the subject of a separate action.

13 The National Guard Bureau has prepared this  
14 Draft Environmental Impact Statement to analyze  
15 the potential impacts of the MOB 2 KC-46A  
16 beddown. The Draft Environmental Impact  
17 Statement analyzes potential environmental  
18 consequences that could result from the proposed  
19 beddown of 12 KC-46A aircraft at any of five  
20 alternative Air National Guard installations,  
21 including Forbes Air National Guard Station,  
22 Kansas; Joint Base McGuire-Dix-Lakehurst, New  
23 Jersey; Pease Air National Guard Station, New  
24 Hampshire; Pittsburgh Air National Guard  
25 Station, Pennsylvania; and Rickenbacker Air

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1 National Guard Station, Ohio.

2 The no-action alternative is required by  
3 the National Environmental Policy Act, and was  
4 evaluated also to provide a baseline for  
5 decision makers. The no action alternative  
6 evaluates the environmental consequences of not  
7 basing the KC-46A aircraft at any installation.  
8 Under the No Action alternative, no installation  
9 would be selected to host the KC-46A for the  
10 second Main Operating Base.

11 In 2013, the Secretary of the Air Force  
12 announced Pease Air National Guard Station as  
13 the preferred alternative for the KC-46A second  
14 Main Operating Base. The United States Air  
15 Force selected Pease Air National Guard Station  
16 based on an operational analysis, results of  
17 site surveys, and military judgment factors. We  
18 would like to emphasize that although the  
19 preferred alternative for the beddown has been  
20 announced, no final decision has been made on  
21 the basing of the KC-46A aircraft currently  
22 under analysis in this draft EIS. Until a final  
23 decision is made by the Secretary of the Air  
24 Force, all alternatives are still under  
25 consideration and are treated equally.

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1 As shown on the poster boards, as a result  
2 of the proposed action, there would be a change  
3 to the type of aircraft based at the selected  
4 installation; a change to the mix of aircraft  
5 using the associated airspace; changes to  
6 staffing and manpower at the selected location;  
7 changes to the number of airfield operations; as  
8 well as minor required construction, building  
9 renovation and facility demolition. There would  
10 be no new or modified airspace required to  
11 support this action. The proposed aircraft  
12 beddown is estimated to begin in late 2017 or  
13 2018 for the National Guard Bureau.

14 If Pittsburgh Air National Guard Station is  
15 selected for the MOB 2 KC-46A beddown, 17 KC-135  
16 aircraft would be replaced by 12 KC-46A  
17 aircraft, personnel would increase by 59  
18 individuals, total airfield operations would  
19 increase by 2 percent and the acreage off  
20 airport-controlled property within the 65  
21 decibel day high average sound level noise  
22 contour would increase by 23 acres.

23 If Pittsburgh is not chosen for the beddown  
24 of the KC-46A tanker aircraft, the existing  
25 KC-235 will remain at the base for the

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TRANSCRIPT OF PROCEEDINGS

16

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1 foreseeable future.

2 Again, I want to thank you for your  
3 attendance and your interest this evening.  
4 Please let me know if I can be of further  
5 assistance, either during or after tonight's  
6 formal proceedings conclude.

7 With that, I will turn over the hearing to  
8 Lt. Col. John Tower, Environmental Manager for  
9 the 171st Air Refueling Wing.

10 LT. COL. TOWER: Thank you, Colonel  
11 Metzgar. Good evening, ladies and gentlemen,  
12 and welcome to the public hearing for the Draft  
13 Environmental Impact Statement. As the Commander  
14 indicated, I am Lt. Col. John Tower, and I serve  
15 as the environmental manager for the 171st Air  
16 Refueling Wing. As a member of the Air  
17 Refueling Wing and of the local community, I am  
18 very interested in what happens here as well.  
19 This is an important occasion in which to  
20 discuss this topic and I appreciate your  
21 interest, your participation and your comments.

22 The Draft Environmental Impact Statement  
23 evaluates impacts to eleven resources by the  
24 proposed action to include noise, air quality,  
25 safety, biological resources, and cultural

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## TRANSCRIPT OF PROCEEDINGS

17

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1 resources. Other resources evaluated can be  
2 reviewed in the Draft Environmental Impact  
3 Statement. As a result of the draft  
4 environmental analysis, we do not expect the  
5 proposed action to have any significant impacts  
6 to any resources.

7 I will speak briefly to most of the  
8 resources I just mentioned. However, more  
9 indepth information is provided in the Draft EIS  
10 document for all eleven resources.

11 The noise poster board shows baseline noise  
12 contours from existing KC-135 aircraft  
13 operations and proposed noise contours from  
14 KC-46A aircraft operations at Pittsburgh. The  
15 analysis was based on 8,040 allocated flying  
16 hours for each unit, which is a conservative  
17 estimate, meaning that flying hours would most  
18 certainly be below that number for each  
19 alternative.

20 As you can see, the noise contours would  
21 reduce slightly by 23 acres off  
22 airport-controlled property. Pittsburgh Air  
23 National Guard Station is located in an area of  
24 non-attainment for some criteria  
25 pollutants, including particulate matter and

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TRANSCRIPT OF PROCEEDINGS

18

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1 ozone. Projected emissions from the proposed  
2 action would not be expected to exceed  
3 established air quality standards. Any increase  
4 in air emissions would be below the established  
5 thresholds for our area and would not be  
6 significant.

7 Under this alternative, minor construction  
8 and renovation of facilities would be required,  
9 resulting in approximately 4.3 acres of  
10 temporary soil disturbance and 2 acres of new  
11 impervious surface. There would be no impacts  
12 to wetlands, floodplains, federally listed  
13 species, or cultural resources. In addition,  
14 the Air National Guard has initiated government  
15 to government coordination with all federally  
16 recognized tribes affiliated with the area. To  
17 date, from the responses we have received, no  
18 tribe has indicated that any traditional  
19 resources occur in the project area.

20 We look forward to input provided from the  
21 public and affected communities as we proceed  
22 through the NEPA process. Once the requirements  
23 of NEPA are complete, the Air Force will make  
24 its final basing decision.

25 Thank you for your attention, and I will

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## TRANSCRIPT OF PROCEEDINGS

19

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1 now turn the presentation over to Ms. Anne Rowe,  
2 the National Guard Bureau Project Manager for  
3 the Environmental Impact Statement to discuss  
4 the NEPA process.

5 MS. ROWE: I will briefly summarize the  
6 NEPA Process.

7 The National Environmental Policy Act,  
8 commonly referred to as NEPA, aids federal  
9 agency decision makers in determining the future  
10 course of federal actions. It is the objective  
11 of NEPA to ensure that decision makers have  
12 environmental information and public input to  
13 facilitate informed decisions.

14 The goal of preparing the Environmental  
15 Impact Statement is to support sound decisions  
16 through the assessment of potential  
17 environmental impacts, as well as involving the  
18 public in the process. The result of this  
19 analysis and other relevant factors will be  
20 considered before a decision is made by the Air  
21 Force on this proposal.

22 The Draft Environmental Impact Statement,  
23 or Draft EIS, which was made available for your  
24 viewing at a number of public locations  
25 beginning on February 7, 2014, presents the

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TRANSCRIPT OF PROCEEDINGS

20

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1 findings and analysis of the proposed action and  
2 alternatives on environmental criteria set forth  
3 by NEPA. Tonight's public hearing is the second  
4 of two public comment forums that provide the  
5 public an opportunity to comment on the scope  
6 and content of the Environmental Impact  
7 Statement. The first forum, called a scoping  
8 meeting, was held at the Town of Moon Municipal  
9 building and at the other alternative locations  
10 in June 2013.

11 Comments have also been solicited from  
12 local, state and federal agencies that have  
13 jurisdiction over particular resources, such as  
14 air and water quality. That process began with  
15 the release of the Notice of Intent to prepare  
16 an Environmental Impact Statement on May 17,  
17 2013, and continues today with public and agency  
18 review of the Draft Environmental Impact  
19 Statement.

20 This hearing gives the potentially affected  
21 communities an opportunity to comment on the  
22 analyses that have been presented in the Draft  
23 Environmental Impact Statement.

24 The formal public comment period ends on  
25 March 24, 2014. Following this period, oral and

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## TRANSCRIPT OF PROCEEDINGS

21

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1 written comments received from both the public  
2 and government agencies will be reviewed by the  
3 Air Force and the National Guard Bureau. We  
4 will continue to accept comments throughout the  
5 NEPA Process. However, it is more difficult to  
6 give your comments the consideration they  
7 deserve as the process winds down close to the  
8 release of the Final Environmental Impact  
9 Statement, or Final EIS.

10 After all comments on the Draft  
11 Environmental Impact Statement have been  
12 addressed, substantive comments will be reviewed  
13 and responded to in the final EIS. The Final  
14 Environmental Impact Statement will be released  
15 to the public for a 30-day period before a  
16 record of decision is signed by the Secretary of  
17 the Air Force or their designee. The Record of  
18 Decision is scheduled to be signed in June 2014.

19 This conduces the explanation of both the  
20 KC-46A beddown proposal, as well as the NEPA  
21 Process. I now return the program back to our  
22 hearing officer.

23 Thank you.

24 COLONEL ALLRED: Normally at this time in  
25 such a proceeding we take a brief recess, 10 to

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TRANSCRIPT OF PROCEEDINGS

22

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1 15 minutes, to gather comment cards from anyone  
2 that might wish to ask questions or make  
3 comments. Because of the few numbers we have  
4 this evening, I am not sure whether a formal  
5 break is necessary.

6 Do we have anyone who has provided a  
7 comment card?

8 (No response.)

9 COLONEL ALLRED: We have one person who  
10 would like to provide comments. At this point,  
11 we will proceed and let anyone speak that would  
12 like to.

13 Mr. Alwine, would you like to come up to  
14 make a comment.

15 MR. ALWINE: Thank you very much. Ann, it  
16 is very nice to meet you in person. I see your  
17 name on correspondence.

18 I wanted to make a comment, because I've  
19 seen no one else was going to, and Colonel  
20 Metzgar touched upon a couple of things,  
21 community involvement, the concern that the  
22 Pittsburgh area and people who live here have  
23 families, people who serve in the military, and  
24 for our region to continue to receive the 171st  
25 and other installations is to grow.

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23

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1 My comment isn't addressing the  
2 environmental impact. The small attendance  
3 numbers you see here should be proof that the  
4 region supports the 171st, the expansion, and we  
5 want to see the 171st get the new tankers and  
6 continue serving and doing the fantastic job  
7 they do.

8 That is my comment. Thank you very much.

9 COLONEL ALLRED: Thank you, sir.

10 I want to make sure everyone has an  
11 opportunity to provide comments or questions.  
12 Is there any other question or comment from  
13 anyone this evening?

14 (No response.)

15 COLONEL ALLRED: Apparently not.

16 I would like to give the National Guard  
17 Bureau an opportunity to address any questions  
18 that might have come up at all. I think I have  
19 in front of us all of the questions that have  
20 been raised.

21 Any other questions that have been fielded?  
22 I want to make sure I am not missing anything.

23 If you still should have any questions that  
24 arise after we have closed the proceeding,  
25 please feel free to visit these information

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TRANSCRIPT OF PROCEEDINGS

24

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1 booths and ask questions that you ay have  
2 regarding the proposed action.

3 Now that all questions appear to be  
4 answered, I would -- just one moment. I'm  
5 moving along in our program, as we seem to have  
6 covered much of it already.

7 Mr. Alwine, you made comments here. Please  
8 be advised that you and anyone else in this  
9 session can be followed up with written  
10 comments, any matters that you would like to  
11 submit in writing. Understand that equal weight  
12 is given to both oral and written comments and  
13 will become part of the official record and be  
14 included in the final environmental impact  
15 statement.

16 This evening's goal was to provide you with  
17 open communication and accurate information to  
18 ensure your informed participation in the NEPA  
19 Process. I hope that we have achieved that  
20 goal. Please feel free to visit the information  
21 booths and ask any additional questions that you  
22 may have regarding this proposed action. You  
23 have an opportunity during the formal comment  
24 period ending March 24, 2014, to provide written  
25 comments. Please stop by the registration booth

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TRANSCRIPT OF PROCEEDINGS

25

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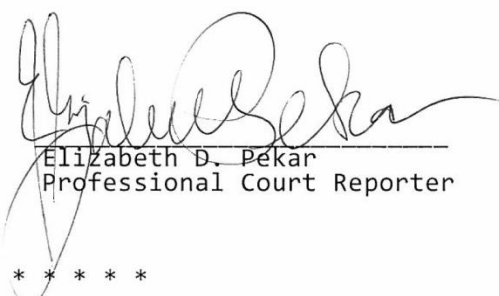
1 to get any additional materials that you ay  
2 need.

3 Thank you and have a good evening.

4 (Whereupon, at 6:25 p.m., the hearing was  
5 concluded.)

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1	TRANSCRIPT OF PROCEEDINGS	26
2	* * * * *	
3	<u>C E R T I F I C A T E</u>	
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5	* * * * *	
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7		
8	I hereby certify that the foregoing is a	
9	true and correct transcript of the hearing held	
10	in the above-captioned matter, to the best of my	
11	ability.	
12		
13	Elizabeth D. Pekar	
14	Professional Court Reporter	
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## TRANSCRIPT OF PROCEEDINGS

1

<p>&lt; Dates &gt;  February 25, 2014 1:9  February 7, 2014 19:25  June 2013, 20:10  June 2014, 21:18  March 24, 2014 8:18, 20:25, 24:24  May 17, 2013 20:16  (6:05 2:2</p> <p>&lt; 1 &gt;  1 13:3, 13:11  10 21:25  12 13:19, 15:16  15 22:1  15108 1:11  17 15:15  171st 2:9, 5:18, 7:23, 10:7, 10:12, 11:10, 12:5, 12:8, 12:13,  12:16, 16:9, 16:15, 22:24, 23:4, 23:5  1974 8:24</p> <p>&lt; 2 &gt;  2 13:8, 13:15, 15:15, 15:19, 18:10  2013 14:11  2017 15:12  2018 15:13  23 15:22, 17:21</p> <p>&lt; 3 &gt;  30-day 21:15</p> <p>&lt; 4 &gt;  4.3 18:9</p> <p>&lt; 5 &gt;  59 15:17  5:00 1:11</p> <p>&lt; 6 &gt;  65 15:20  6:25 25:4</p> <p>&lt; 7 &gt;  777 1:10</p>	<p>already 11:6, 24:6  alternative 13:20, 14:2, 14:5, 14:8, 14:13, 14:19, 17:19, 18:7,  20:9  alternatives 3:25, 6:13, 11:13, 14:24, 20:2  although 7:18, 14:18  Alwine 7:8, 22:13, 22:15, 24:7  analyses 12:7, 20:22  analysis 4:1, 14:16, 14:22, 17:4, 17:15, 19:19, 20:1  analyze 13:14  analyzes 13:17  Andrews 3:4, 11:8  Ann 22:15  Anne 1:21, 11:13, 19:1  announced 14:12, 14:20  answer 5:22, 5:23, 7:17, 11:24, 12:2, 12:3  answered 6:1, 24:4  answering 11:2  Apparently 7:8, 23:15  appear 24:3  appreciate 16:20  appreciated 12:18  approximately 18:9  area 12:10, 17:23, 18:5, 18:16, 18:19, 22:22  arise 23:24  assessment 19:16  assigned 3:12  assist 11:1  assistance 3:19, 16:5  associated 3:25, 15:5  Aten 1:10  attendance 9:21, 16:3, 23:2  attention 18:2  audience 5:1, 5:25, 6:1  available 6:5, 9:14, 9:20, 10:4, 11:23, 19:23  average 15:21  ay 24:1, 25:1</p> <p>&lt; B &gt;  back 21:21  Base 1:3, 2:7, 3:4, 11:8, 13:2, 13:8, 13:11, 13:22, 14:10,  14:14, 15:25  based 14:16, 15:3, 17:15  baseline 14:4, 17:11  basing 14:7, 14:21, 18:24  become 24:13  Beddown 1:3, 2:7, 10:18, 10:20, 13:1, 13:7, 13:11, 13:16,  13:19, 14:19, 15:12, 15:15, 15:23, 21:20  began 20:14  begin 2:24, 15:12</p>
<p>&lt; 8 &gt;  8,040 17:15  8:00 4:16, 4:18, 4:22</p> <p>&lt; A &gt;  abandoned 4:5  ability 26:11  above-captioned 26:10  accept 21:4  accepted 8:2  accurate 24:17  achieved 24:19  acreage 15:19  acres 15:22, 17:21, 18:9, 18:10  Act 3:8, 8:24, 10:21, 11:16, 14:3, 19:7  Action 3:17, 3:19, 3:25, 5:13, 6:12, 11:13, 12:21, 13:12, 14:5,  14:8, 15:2, 15:11, 16:24, 17:5, 18:2, 20:1, 24:2, 24:22  actions 19:10  active 13:4  addition 6:10, 18:13  additional 8:6, 24:21, 25:1  address 8:9, 8:11, 8:25, 23:17  addressed 8:15, 21:12  addresses 9:7  addressing 23:1  administrative 8:14  advice 3:18  advised 24:8  Advocate 2:23, 3:15, 11:7  aerial 12:22  Affairs 1:20, 2:10  affected 18:21, 20:20  affiliated 18:16  agencies 9:6, 20:12, 21:2  agency 19:9, 20:17  aids 19:8  Aircraft 1:4, 2:8, 10:18, 10:20, 11:2, 12:24, 13:19, 14:7,  14:21, 15:3, 15:4, 15:11, 15:16, 15:17, 15:24, 17:12, 17:14  airfield 15:7, 15:18  Airport 1:10, 10:14, 12:7  airport-controlled 15:20, 17:22  airspace 15:5, 15:10  allocated 17:15  allow 5:17, 7:2  allowed 6:21  allows 6:19  ALLRED 1:16, 2:23, 3:1, 3:3, 11:6, 21:24, 22:9, 23:9, 23:15</p>	<p>beginning 19:25  behalf 10:14  below 17:18, 18:4  best 2:20, 5:21, 26:10  biological 16:25  board 17:11  boards 15:1  Bogdan 1:20, 2:4, 2:9, 3:2  booth 24:25  booths 9:22, 24:1, 24:21  box 6:2  break 5:17, 5:23, 7:2, 7:3, 22:5  brief 21:25  briefly 17:7, 19:5  bring 5:7  brochures 9:2  building 15:8, 20:9  Bureau 8:19, 7:24, 8:9, 8:20, 11:14, 11:21, 13:13, 15:13, 19:2,  21:3, 23:17</p> <p>&lt; C &gt;  called 6:22, 6:23, 20:7  capacity 3:7  card 5:3, 5:7, 5:9, 6:7, 6:9, 22:7  Cardno 11:21  cards 5:16, 5:24, 6:2, 6:5, 22:1  care 12:19  CD 9:23  cell 2:16  certainly 17:18  certify 26:8  change 15:2, 15:4  changes 15:5, 15:7  check-in 7:12, 9:23  checked 6:1  Chief 3:3, 3:13  chosen 15:23  citizens 6:16  clarification 5:2, 5:11  clarifying 7:18  clear 3:6  close 21:7  closed 23:24  Col 1:19, 11:10, 16:8, 16:10, 16:14  collect 5:10  COLONEL 1:16, 1:17, 1:18, 2:23, 3:1, 3:2, 5:18, 10:7, 10:9,  10:10, 11:6, 16:10, 21:24, 22:9, 22:19, 23:9, 23:15  command 3:12  Commander 1:17, 1:18, 10:7, 10:11, 16:13</p>

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## TRANSCRIPT OF PROCEEDINGS

5

commencing 1:11  
 comment 3:24, 4:3, 4:7, 4:11, 5:14, 5:15, 6:21, 8:10, 8:12, 8:16, 20:4, 20:5, 20:21, 20:24, 22:1, 22:7, 22:14, 22:18, 23:1, 23:8, 23:12, 24:23  
 commenting 12:4  
 comments 2:20, 4:9, 4:17, 4:19, 5:12, 6:3, 6:18, 6:20, 8:2, 8:6, 8:8, 8:13, 8:21, 8:25, 9:8, 16:21, 20:11, 21:1, 21:4, 21:6, 21:10, 21:12, 22:3, 22:10, 23:11, 24:7, 24:10, 24:12, 24:25  
 commonly 10:22, 19:8  
 communication 24:17  
 communities 18:21, 20:21  
 community 12:4, 12:6, 12:11, 12:14, 12:19, 16:17, 22:21  
 compile 9:1  
 complete 18:23  
 concern 22:21  
 concerning 9:3  
 concerns 8:21  
 conclude 4:16, 16:6  
 concluded 25:5  
 conclusion 7:20  
 conduces 21:19  
 consequences 13:18, 14:6  
 conservative 17:16  
 consideration 8:3, 14:25, 21:6  
 considerations 11:15  
 considered 19:20  
 consistently 12:12  
 construction 15:8, 18:7  
 consultant 7:24  
 consultants 5:20, 11:22  
 content 20:6  
 continue 4:17, 4:22, 21:4, 22:24, 23:6  
 continued 4:5  
 continues 20:17  
 contour 15:22  
 contours 17:12, 17:13, 17:20  
 conversion 11:3  
 coordination 18:15  
 copies 9:19  
 copy 9:18  
 Coraopolis 1:10  
 correct 26:9  
 correspondence 22:17  
 couple 22:20  
 course 19:10  
 Court 6:25, 7:2, 26:16  
 covered 24:6  
 criteria 17:24, 20:2  
 cultural 16:25, 18:13

5

either 12:1, 16:5  
 Elected 6:22, 9:6  
 eleven 16:23, 17:10  
 Elizabeth 26:15  
 emissions 18:1, 18:4  
 emphasize 14:18  
 end 4:18  
 ending 24:24  
 ends 8:17, 20:24  
 enjoy 2:12  
 ensure 6:16, 10:22, 19:11, 24:18  
 entertained 5:12  
 entrance 10:4  
 equal 8:3, 24:11  
 equally 14:25  
 established 18:3, 18:4  
 estimate 17:17  
 estimated 15:12  
 evaluated 14:4, 17:1  
 evaluates 14:6, 16:23  
 evening 2:4, 3:1, 10:10, 10:19, 11:1, 11:9, 16:3, 16:11, 22:4, 23:13, 24:16, 25:3  
 everyone 2:21, 3:23, 6:19, 23:10  
 exceed 18:2  
 existing 12:22, 15:24, 17:12  
 expansion 23:4  
 expect 17:4  
 expected 18:2  
 explaining 11:15  
 explanation 21:19

< F >  
 facilitate 11:3, 11:24, 19:13  
 facilities 18:8  
 facility 2:14, 15:9  
 factors 14:17, 19:19  
 failure 9:11  
 families 22:23  
 fantastic 23:6  
 federal 3:7, 9:5, 19:8, 19:10, 20:12  
 federally 18:12, 18:15  
 feel 23:25, 24:20  
 few 22:3  
 fielded 23:21  
 fill 5:3  
 filled 5:8, 6:7, 8:10  
 final 8:15, 14:20, 14:22, 18:24, 21:8, 21:9, 21:13, 24:14  
 find 11:25  
 findings 4:12, 7:21, 11:4, 20:1

7

current 11:23, 12:8, 12:9  
 currently 14:21

< D >  
 D. 26:15  
 Daniel 7:8  
 date 18:17  
 day 15:21  
 debate 7:15  
 decibel 15:21  
 decision 4:4, 14:5, 14:20, 14:23, 18:24, 19:9, 19:11, 19:20, 21:16, 21:18  
 decisions 19:13, 19:15  
 deeply 12:18, 12:19  
 delivery 9:12  
 demolition 15:9  
 describing 6:11  
 description 6:12  
 deserve 21:7  
 designed 7:17  
 designee 21:17  
 desire 6:3, 6:7  
 desk 5:4, 7:12, 9:23  
 detail 7:22  
 determining 19:9  
 development 11:18, 12:15  
 developments 9:13  
 difficult 21:5  
 direct 4:8, 12:2  
 directly 3:13  
 discuss 7:21, 16:20, 19:3  
 discussion 4:21, 13:6  
 disturbance 18:10  
 document 9:23, 17:10  
 documents 9:9, 9:12, 9:14  
 doing 23:6  
 door 6:11  
 down 21:7  
 draft 1:2, 2:6, 3:21, 4:12, 6:14, 7:15, 7:21, 8:17, 9:19, 10:17, 11:4, 13:14, 13:16, 14:22, 16:12, 16:22, 17:2, 17:3, 17:9, 19:22, 19:23, 20:18, 20:22, 21:10  
 during 2:17, 4:7, 8:25, 16:5, 24:23  
 duty 13:4

< E >  
 earlier 7:10  
 Edward 1:17, 10:10  
 EIS 12:1, 14:22, 17:9, 19:23, 21:9, 21:13

6

First 6:24, 13:2, 20:7  
 five 13:19  
 fleet 12:23, 12:24  
 floodplains 18:12  
 flying 17:15, 17:17  
 followed 24:9  
 following 4:25, 20:25  
 Forbes 13:21  
 Force 3:4, 3:14, 3:15, 11:7, 12:21, 12:24, 12:25, 13:7, 14:11, 14:15, 14:24, 18:23, 19:21, 21:3, 21:17  
 foregoing 26:8  
 foreseeable 16:1  
 form 8:10  
 formal 2:15, 2:24, 4:2, 4:14, 4:18, 8:16, 11:23, 13:1, 16:6, 20:24, 22:4, 24:23  
 forth 20:2  
 forum 20:7  
 forums 20:4  
 forward 6:4, 18:20  
 forwarded 9:5  
 foster 12:14  
 found 5:4, 5:16, 7:12  
 free 23:25, 24:20  
 front 23:19  
 FTU 13:2, 13:11  
 future 12:20, 16:1, 19:9

< G >  
 gather 22:1  
 General 3:15, 5:12  
 gentlemen 2:5, 16:11  
 give 2:21, 21:6, 23:16  
 given 8:3, 24:12  
 gives 20:20  
 goal 10:19, 19:14, 24:16, 24:20  
 government 18:14, 18:15, 21:2  
 greater 7:22, 12:4  
 groups 9:4  
 grow 22:25  
 Guard 1:1, 1:21, 5:19, 6:11, 7:24, 8:9, 8:20, 10:12, 10:15, 11:14, 11:20, 11:21, 12:16, 13:9, 13:13, 13:20, 13:21, 13:23, 13:24, 14:1, 14:12, 14:15, 15:13, 15:14, 17:23, 18:14, 19:2, 21:3, 23:16

< H >  
 Hampshire 13:24  
 hand 5:6, 5:9, 6:9, 10:5  
 handouts 10:2

8

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## TRANSCRIPT OF PROCEEDINGS

9

happens 16:18  
 Headquarters 11:7  
 Hearing 1:1, 1:16, 2:5, 2:16, 2:25, 3:8, 3:21, 4:1, 4:8, 4:10,  
 4:13, 4:15, 4:20, 5:15, 7:5, 7:13, 7:14, 7:20, 9:21, 10:16,  
 11:9, 13:10, 16:7, 16:12, 20:3, 20:20, 21:22, 25:4, 26:9  
 help 11:24  
 helped 12:14  
 hereby 26:8  
 Mess 1:18  
 home 12:8, 12:20  
 Honor 10:9  
 hope 24:19  
 host 14:9  
 hour 7:2  
 hours 17:16, 17:17

< I >  
 identify 5:21, 12:25  
 impact 1:2, 2:6, 3:17, 3:22, 4:6, 4:12, 6:15, 7:16, 7:22, 8:15,  
 8:17, 9:4, 9:19, 9:25, 10:17, 11:5, 11:19, 13:5, 13:14,  
 13:16, 16:13, 16:22, 17:2, 19:3, 19:15, 19:22, 20:6, 20:16,  
 20:18, 20:23, 21:8, 21:11, 21:14, 23:2, 24:14  
 impacts 13:15, 16:23, 17:5, 18:11, 19:17  
 impervious 18:11  
 important 8:18, 10:16, 12:5, 16:19  
 importantly 4:13  
 in 6:6  
 include 16:24  
 included 8:14, 24:14  
 including 4:20, 13:14, 17:25  
 increase 15:17, 15:19, 15:22, 18:3  
 independent 3:10, 3:20  
 in-depth 17:9  
 indicated 6:7, 16:14, 18:18  
 indicating 6:2  
 individual 12:3  
 individually 4:22  
 individuals 4:9, 6:22, 9:4, 9:7, 11:1, 11:17, 15:18  
 inform 8:23  
 information 6:13, 9:3, 9:11, 9:22, 10:20, 17:9, 19:12, 23:25,  
 24:17, 24:20  
 informational 10:2, 10:3  
 informed 19:13, 24:18  
 initiated 18:14  
 input 12:6, 18:20, 19:12  
 installation 3:12, 14:7, 14:8, 15:4  
 installations 13:20, 22:25  
 intent 20:15

9

local 9:6, 9:16, 16:17, 20:12  
 located 2:10, 7:10, 17:23  
 location 15:6  
 locations 6:13, 9:15, 9:24, 12:25, 19:24, 20:9  
 look 18:20  
 Lt 1:19, 11:10, 16:8, 16:10, 16:14

< M >  
 mailing 9:1  
 Main 1:3, 2:7, 13:2, 13:8, 13:10, 14:10, 14:14  
 Maintenance 1:18  
 Major 1:20, 2:4, 2:9, 3:2  
 makers 14:5, 19:9, 19:11  
 Manager 11:11, 16:8, 16:15, 19:2  
 manpower 15:6  
 Mark 1:16, 2:23, 3:3, 11:6  
 Marriott 1:10  
 Maryland 3:5, 11:8  
 materials 4:20, 6:10, 10:3, 25:1  
 Matt 7:9  
 matter 17:25, 26:10  
 matters 24:10  
 maximum 10:23  
 McGuire-dix-lakehurst 13:22  
 meaning 17:17  
 meet 22:16  
 meeting 4:24, 10:1, 20:8  
 member 3:11, 11:25, 16:16  
 members 4:21, 4:25, 6:1, 7:23, 12:10, 12:18  
 mentioned 7:10, 17:8  
 met 11:6  
 Metzgar 1:17, 5:18, 10:7, 10:9, 10:11, 16:11, 22:20  
 military 12:13, 14:17, 22:23  
 mind 7:14  
 minor 15:8, 18:7  
 minute 5:14, 7:2  
 minutes 6:18, 22:1  
 missing 23:22  
 mix 15:4  
 MOB 13:3, 13:8, 13:11, 13:15, 15:15  
 mode 2:17  
 moderator 3:8  
 modified 4:5, 15:10  
 moment 24:4  
 Moon 20:8  
 moving 24:5  
 MS 19:1, 19:5  
 Municipal 20:8  
 Murphy 7:7

11

interest 16:3, 16:21  
 interested 4:23, 6:16, 9:5, 16:18  
 international 10:13, 12:7  
 interrupt 2:18  
 introduce 7:4, 10:25  
 involved 4:14, 11:18  
 involvement 3:16, 22:21  
 involving 19:17

< J >  
 Jersey 13:23  
 job 23:6  
 John 1:19, 11:10, 16:8, 16:14  
 joint 3:4, 11:8, 13:22  
 Judge 2:23, 3:2, 3:3, 3:7, 3:13, 3:14, 11:7  
 judgment 14:17  
 judiciary 3:9  
 jurisdiction 20:13

< K >  
 Kaitlin 7:6  
 Kansas 13:22  
 Karen 1:20, 2:9, 3:2  
 KC-135 12:22, 15:15, 17:12  
 KC-235 15:25  
 KC-46A 1:4, 2:7, 10:18, 12:23, 13:7, 13:15, 13:19, 14:7, 14:9,  
 14:13, 14:21, 15:15, 15:16, 15:24, 17:14, 21:20  
 keep 7:14  
 key 11:15  
 known 13:2, 13:3, 13:8

< L >  
 ladies 2:4, 16:11  
 late 15:12  
 later 5:14  
 led 13:3, 13:9  
 left 4:23  
 legal 3:18  
 legitimate 7:18  
 level 15:21  
 libraries 9:15  
 limit 6:17  
 list 9:24  
 listed 18:12  
 lists 9:2  
 live 12:10, 12:18, 22:22  
 lobby 2:13, 7:11

10

< N >  
 name 6:22, 8:24, 10:10, 12:1, 22:17  
 National 1:1, 1:21, 5:19, 6:11, 7:24, 8:9, 8:19, 8:20, 10:12,  
 10:15, 10:21, 11:14, 11:16, 11:20, 11:21, 12:15, 13:9, 13:13,  
 13:20, 13:21, 13:23, 13:24, 14:1, 14:3, 14:12, 14:15, 15:13,  
 15:14, 17:23, 18:14, 19:2, 19:7, 21:3, 23:16  
 near 7:12  
 necessary 4:16, 22:5  
 need 25:2  
 NEPA 4:15, 8:22, 9:1, 10:22, 18:22, 18:23, 19:4, 19:6, 19:8,  
 19:11, 20:3, 21:5, 21:20, 24:18  
 New 12:24, 13:22, 13:23, 15:10, 18:10, 23:5  
 newspapers 9:16  
 Next 11:10  
 nice 22:16  
 night 15:21  
 no-action 14:2  
 noise 15:21, 16:24, 17:11, 17:13, 17:20  
 non-attainment 17:24  
 nor 7:16  
 Normally 21:24  
 Notice 20:15  
 notification 9:13  
 number 11:17, 15:7, 17:18, 19:24  
 numbers 22:3, 23:3

< O >  
 o'clock 2:2  
 O'Connor 7:6  
 objective 19:10  
 occasion 16:19  
 occur 18:19  
 Office 2:10, 7:6, 7:9  
 Officer 1:16, 3:21, 21:22  
 official 6:11, 7:5, 24:13  
 officials 6:22, 9:6  
 Ohio 14:1  
 Once 5:8, 5:25, 18:22  
 one 5:9, 5:15, 7:5, 22:9, 22:19, 24:4  
 open 8:20, 24:17  
 Operating 1:3, 2:7, 13:2, 13:8, 13:10, 14:10, 14:14  
 operational 14:16  
 operations 15:7, 15:18, 17:13, 17:14  
 opportunity 2:21, 3:24, 4:2, 4:11, 4:14, 6:17, 6:19, 20:5,  
 20:21, 23:11, 23:17, 24:23  
 oral 2:20, 6:3, 8:1, 8:4, 20:25, 24:12  
 orally 5:14

12

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## TRANSCRIPT OF PROCEEDINGS

13

organization 3:10  
 organizations 6:23  
 outset 3:6  
 outside 2:13, 7:11  
 overall 4:20  
 overview 11:12  
 ozone 18:1

< P >  
 p.m. 1:11, 2:2, 4:16, 4:18, 4:22, 25:4  
 PANEL 1:15, 4:9, 5:13  
 part 12:11, 13:6, 24:13  
 participation 10:23, 11:3, 16:21, 24:18  
 particular 20:13  
 particulate 17:25  
 parties 4:23  
 Pease 13:23, 14:12, 14:15  
 Pekar 26:15  
 Pennsylvania 1:11, 2:11, 8:19, 10:12, 10:14, 11:20, 12:15, 13:25  
 people 22:22, 22:23  
 per 6:18  
 percent 15:19  
 period 8:16, 20:24, 20:25, 21:15, 24:24  
 person 5:21, 6:18, 22:9, 22:16  
 personnel 15:17  
 phones 2:16  
 pick 9:22  
 Pittsburgh 1:9, 2:11, 10:13, 12:4, 12:7, 12:10, 13:24, 15:14, 15:23, 17:14, 17:22, 22:22  
 placed 2:17  
 plans 12:23  
 Please 2:12, 2:18, 2:19, 5:9, 6:8, 10:4, 16:4, 23:25, 24:7, 24:20, 24:25  
 point 10:6, 22:10  
 points 5:2  
 Policy 10:21, 11:16, 14:3, 19:7  
 pollutants 17:25  
 portion 2:15, 2:24, 4:8, 12:22  
 poster 15:1, 17:11  
 potential 13:15, 13:17, 19:16  
 potentially 20:20  
 preferred 14:13, 14:19  
 preparation 3:16  
 prepare 20:15  
 prepared 4:7, 13:13  
 preparing 19:14  
 PRESENT 1:15, 5:14  
 presentation 4:25, 9:18, 19:1

13

receive 10:2, 22:24  
 received 4:17, 5:24, 18:17, 21:1  
 recess 21:25  
 recognize 7:5  
 recognized 18:16  
 recommendation 4:3  
 Record 7:1, 8:14, 21:16, 21:17, 24:13  
 recording 6:25  
 reduce 17:21  
 referred 10:22, 19:8  
 refreshments 2:12, 7:11  
 Refueling 2:10, 5:18, 7:23, 10:8, 10:13, 11:11, 12:5, 12:8, 12:14, 12:16, 12:23, 16:9, 16:16, 16:17  
 regarding 3:21, 5:1, 5:11, 10:16, 11:15, 13:10, 24:2, 24:22  
 region 22:24, 23:4  
 Registration 5:4, 6:2, 6:5, 6:6, 24:25  
 release 20:15, 21:8  
 released 9:9, 21:14  
 relevant 8:13, 19:19  
 remain 15:25  
 rendered 3:18  
 renovation 15:9, 18:8  
 repeat 9:8  
 replace 12:22  
 replaced 15:16  
 report 3:13  
 Reporter 6:25, 7:3, 26:16  
 reports 9:2  
 Representative 1:19, 7:7  
 representatives 7:25  
 representing 6:23  
 requested 9:12  
 required 14:2, 15:8, 15:10, 18:8  
 requirement 8:23  
 requirements 18:22  
 resources 16:23, 16:25, 17:1, 17:6, 17:8, 17:10, 18:13, 18:19, 20:13  
 respect 3:19  
 respectful 7:19  
 responded 21:13  
 response. 22:8, 23:14  
 responses 18:17  
 responsible 3:23  
 responsive 8:21  
 Restrooms 2:13, 7:10  
 result 13:18, 15:1, 17:3, 19:18  
 resulting 18:9  
 results 14:16  
 retired 12:9  
 return 21:21

15

presented 5:12, 20:22  
 presents 19:25  
 presiding 11:9  
 prevent 9:12  
 primarily 7:17  
 printed 8:9  
 Privacy 8:24  
 private 9:7  
 proceed 9:17, 18:21, 22:11  
 proceeding 7:1, 21:25, 23:24  
 PROCEEDINGS 1:8, 2:18, 16:6  
 Process 4:15, 8:22, 9:1, 10:24, 11:25, 18:22, 19:4, 19:6, 19:18, 20:14, 21:5, 21:7, 21:21, 24:19  
 Professional 26:16  
 program 21:21, 24:5  
 prohibited 2:14  
 Project 4:4, 9:2, 9:14, 18:19, 19:2  
 Projected 18:1  
 proof 23:3  
 property 15:20, 17:22  
 proposal 6:12, 19:21, 21:20  
 proposed 3:17, 3:24, 4:4, 6:12, 10:18, 10:20, 11:13, 12:21, 13:18, 15:2, 15:11, 16:24, 17:5, 17:13, 18:1, 20:1, 24:2, 24:22  
 provide 4:11, 6:3, 6:20, 8:1, 8:5, 9:11, 10:5, 10:19, 11:12, 14:4, 20:4, 22:10, 23:11, 24:16, 24:24  
 provided 2:12, 6:9, 8:11, 8:25, 9:25, 17:9, 18:20, 22:6  
 provides 4:2  
 providing 2:20, 3:23  
 Public 1:1, 1:20, 2:5, 2:10, 3:20, 4:1, 4:7, 4:10, 7:5, 7:14, 9:10, 10:1, 10:16, 16:12, 18:21, 19:12, 19:18, 19:24, 20:3, 20:4, 20:5, 20:17, 20:24, 21:1, 21:15  
 published 9:9, 9:16  
 purpose 4:10

< Q >  
 quality 16:24, 18:3, 20:14  
 question 5:3, 5:8, 5:24, 7:17, 23:12  
 questions 5:1, 5:11, 5:21, 5:24, 5:25, 7:19, 11:2, 11:24, 12:2, 12:3, 22:2, 23:11, 23:17, 23:19, 23:21, 23:23, 24:1, 24:3, 24:21

< R >  
 raise 5:6, 5:9, 6:8, 10:4  
 raised 23:20  
 read 5:13  
 reaffirm 8:5  
 realize 8:19

14

review 5:20, 6:14, 9:20, 10:1, 20:18  
 reviewed 9:18, 17:2, 21:2, 21:12  
 Rickenbacker 13:25  
 Road 1:10  
 room 3:11, 5:5, 5:16, 7:11  
 ROWE 1:21, 11:13, 19:1, 19:5

< S >  
 safety 16:25  
 scattered 5:5  
 scheduled 4:15, 21:18  
 scope 20:5  
 scoping 20:7  
 Second 1:3, 2:7, 13:7, 13:10, 14:10, 14:13, 20:3  
 Secretary 14:11, 14:23, 21:16  
 seem 24:5  
 seen 22:19  
 select 9:15  
 selected 14:9, 14:15, 15:3, 15:6, 15:15  
 Senator 7:9  
 sending 9:2  
 sent 8:8  
 separate 13:5, 13:12  
 serve 3:20, 16:14, 22:23  
 serving 23:6  
 session 4:18, 7:18, 11:23, 24:9  
 set 20:2  
 several 5:5  
 sheets 8:12  
 shown 15:1  
 shows 17:11  
 signed 21:16, 21:18  
 significant 17:5, 18:6  
 silent 2:17  
 sir 23:9  
 site 14:17  
 slightly 17:21  
 small 23:2  
 Smith 7:9  
 smoking 2:13  
 soil 18:10  
 solely 3:8  
 solicited 20:11  
 someone 5:6, 10:5  
 sound 15:21, 19:15  
 speakers 2:19  
 species 18:13  
 staff 5:10, 5:19, 7:23  
 staffing 15:6

16

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## TRANSCRIPT OF PROCEEDINGS

17

standards 18:3  
 starting 2:15  
 state 9:6, 20:12  
 Statement 1:2, 2:6, 3:18, 3:22, 4:6, 4:13, 6:15, 7:16, 7:22,  
 8:4, 8:5, 8:16, 8:17, 9:4, 9:19, 9:25, 10:17, 11:5, 11:19,  
 13:5, 13:14, 13:17, 16:12, 16:22, 17:3, 19:3, 19:15, 19:22,  
 20:7, 20:16, 20:19, 20:23, 21:9, 21:11, 21:14, 24:15  
 States 3:4, 3:9, 3:14, 14:14  
 Station 13:21, 13:23, 13:25, 14:1, 14:12, 14:15, 15:14, 17:23  
 stop 24:25  
 subject 13:4, 13:12  
 submit 5:15, 24:11  
 submitted 5:21  
 submitting 9:8  
 substantive 8:13, 21:12  
 summarize 19:5  
 support 12:17, 15:11, 19:15  
 supportive 12:13  
 supports 23:4  
 surface 18:11  
 surveys 14:17

< Y >  
 years 12:17

< T >  
 table 6:6  
 tables 5:5  
 tag 12:1  
 Tanker 1:4, 2:8, 10:18, 15:24  
 tankers 23:5  
 team 4:21  
 TEC 11:21  
 technical 7:25  
 temporary 18:10  
 ten 5:17, 6:18, 7:1  
 Thomas 1:18  
 thresholds 18:5  
 Throughout 5:5, 5:16, 7:13, 8:22, 21:4  
 Tim 7:7  
 today 20:17  
 Tonight 2:16, 2:24, 3:20, 3:24, 6:15, 13:6, 16:5, 20:3  
 topic 16:20  
 topics 5:11  
 total 15:18  
 touched 22:20  
 Tower 1:19, 11:10, 16:8, 16:10, 16:14  
 Town 20:8  
 traditional 18:18  
 training 13:1  
 TRANSCRIPT 1:8, 26:9  
 treated 14:25

17

19

Trial 3:3, 3:9, 3:13  
 tribe 18:18  
 tribes 18:16  
 true 26:9  
 Tuesday 1:9  
 turn 10:6, 16:7, 19:1  
 turned 2:17  
 two 20:4  
 type 7:15, 15:3

< U >  
 Understand 24:11  
 understanding 10:23  
 understood 5:3  
 uniform 12:1  
 unit 13:1, 13:9, 17:16  
 United 3:4, 3:9, 3:14, 14:14  
 units 13:4  
 unless 4:23  
 Until 4:17, 4:22, 14:22  
 urge 4:8  
 using 15:5

< V >  
 valuable 12:6  
 viewed 4:21  
 viewing 19:24  
 visit 23:25, 24:20  
 vote 7:15

< W >  
 wanted 22:18  
 water 20:14  
 website 8:11, 9:15  
 weight 24:11  
 welcome 2:5, 8:4, 10:15, 16:12  
 wetlands 18:12  
 whereupon 25:4  
 whether 4:4, 22:4  
 winds 21:7  
 wing 1:17, 2:10, 5:18, 7:23, 10:8, 10:11, 10:13, 11:11, 12:5,  
 12:9, 12:14, 12:16, 16:9, 16:16, 16:17  
 wish 6:8, 8:1, 22:2  
 within 15:20  
 work 3:10, 12:19  
 writing 24:11  
 written 8:2, 8:5, 8:8, 21:1, 24:9, 24:12, 24:24

18

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\* \* \*

DRAFT EIS HEARING PROCEEDINGS

\* \* \*

DATE OF HEARING: Thursday, February 27, 2014  
6:02 o'clock p.m.

PLACE OF HEARING: 2241 John Circle Drive  
Columbus, Ohio 43217

HEARING OFFICER: Colonel Mark Allred

\* \* \*

1           CAPTAIN ERICA WONN: Good evening, ladies  
2   and gentlemen, and welcome to the public hearing  
3   for the Draft Environmental Impact Statement for  
4   the Second Main Operating Base Beddown of the  
5   KC-46A Tanker Aircraft. I'm Captain Erica Wonn  
6   with the 121st Air Refueling Wing's Public Affairs  
7   Office located here in Columbus, Ohio.

8           Please enjoy the refreshments provided.  
9   Restrooms are outside in the lobby, and smoking in  
10   the facility is prohibited.

11           Before starting the formal portion of  
12   tonight's hearing, I ask that cell phones be turned  
13   off or placed in the silent mode. During the  
14   proceedings, please do not interrupt the speakers  
15   and please be respectful to those providing oral  
16   comments. We will do our best to give everyone an  
17   opportunity to speak in the time we have.

18           Colonel Mark Allred, Judge Advocate, will  
19   now begin the formal portion of tonight's hearing.

20           COLONEL MARK ALLRED: Good evening, and  
21   thank you Captain Wonn. I am Judge Colonel Mark  
22   Allred. I'm the chief trial judge of the United  
23   States Air Force from Joint Base Andrews, Maryland.  
24   I'd like to make clear from the outset that I'm  
25   here in my capacity as a federal judge solely to

3

1 act as a moderator in this hearing. The United  
2 States Trial Judiciary is an independent  
3 organization. I do not work for, or with, anyone  
4 in this room. I am not a member of this command or  
5 assigned to this installation. I report directly  
6 to the Judge Advocate General of the Air Force.  
7 I've had no involvement with the preparation of  
8 this proposed action or the Environmental Impact  
9 Statement. I have not rendered legal advice or  
10 assistance with respect to this action. I'm here  
11 tonight to serve as an independent public hearing  
12 officer regarding the Draft Environmental Impact  
13 Statement. I am responsible for providing everyone  
14 an opportunity to comment tonight on the proposed  
15 action, alternatives, and associated environmental  
16 analysis. This public hearing provides you with  
17 the formal opportunity for comment. I do not make  
18 any recommendation or decision on whether the  
19 proposed project should be continued, modified, or  
20 abandoned or how the Environmental Impact Statement  
21 should be prepared. Therefore, during the public  
22 comment portion of this hearing I urge you to  
23 direct your comments to the individuals on our  
24 panel.

25 The purpose of this public hearing is to

1 provide you with an opportunity to comment on the  
2 findings of the Draft Environmental Impact  
3 Statement. More importantly, this hearing is a  
4 formal opportunity for you to get involved in the  
5 NEPA Process. This hearing is scheduled to conclude  
6 at 8:00 p.m., but if necessary, it will continue  
7 until all comments have been received. This formal  
8 session may end before 8:00 p.m., if there are no  
9 more comments. However, the overall hearing,  
10 including materials to be viewed and discussion with  
11 team members individually, will continue until  
12 8:00 p.m., unless all interested parties left the  
13 meeting.

14           If following the presentation any members  
15 of the audience have questions regarding  
16 clarification of any points you may not have  
17 understood, you may fill out a question card, which  
18 can be found at the registration desk or on several  
19 tables scattered throughout the room, or you may  
20 raise your hand now and someone will bring a card to  
21 you. Once you have filled out your question on the  
22 card, please raise your hand again and one of our  
23 staff will collect it from you. Only questions  
24 regarding clarification of the topics presented will  
25 be entertained. General comments on the action will

5

1 not be read by our panel, but you may present your  
2 comment orally later in this hearing or submit it on  
3 one of the comment cards found throughout the room.

4 Later we will take a break to allow  
5 Colonel Jones, the 121st Air Refueling Wing staff,  
6 National Guard Bureau staff and environmental  
7 consultants to review any questions submitted and  
8 identify the best person to answer each.

9 After the break, we will answer any  
10 questions that we have received on the question  
11 cards from the audience. Once the questions have  
12 been answered, members of the audience who checked  
13 the box on their registration cards indicating their  
14 desire to provide oral comments will be asked to  
15 come forward.

16 Registration cards were available at the  
17 registration table as you came in. If you have not  
18 filled out a card or indicated your desire to speak  
19 and wish to do so, please raise your hand and a card  
20 will be provided to you now.

21 In addition, there are materials at the  
22 door describing the office Air National Guard  
23 proposal, the description of the proposed action and  
24 alternatives, and information on locations where you  
25 can review the Draft Environmental Impact Statement

1 after tonight, if you have not already done so.

2 To ensure that all interested citizens  
3 have an opportunity to speak, I will limit the  
4 comments to ten minutes per person. If time allows  
5 after everyone has had an opportunity to provide  
6 their comments, you may have more time. You will  
7 only be allowed to comment when your name is called.  
8 Elected officials and individuals representing  
9 organizations will be called upon first.

10 A court reporter is recording this  
11 proceeding for the record. We will take a  
12 ten-minute break every hour to allow the court  
13 reporter to take a break.

14 At this time I would like to introduce and  
15 recognize a few public officials that are present at  
16 the hearing. First of all, Brigadier General Mark  
17 Stevens who is the director of the Joint Staff at  
18 the Ohio National Guard. Welcome, sir. And also we  
19 would like to recognize Ms. Susan Cox. She is from  
20 the office of U.S. Senator, Rob Portman, a  
21 representative from his office.

22 As I mentioned, there are restrooms  
23 located nearby. There are some just to the rear of  
24 us here and refreshments can be found over in this  
25 area.

1           Throughout this hearing, I ask that you  
2     keep in mind that this public hearing is not a  
3     debate, or any type of vote on the Draft  
4     Environmental Impact Statement, nor is it primarily  
5     designed as a question-and-answer session, although  
6     legitimate, clarifying questions may be asked. At  
7     the conclusion of this hearing you may discuss the  
8     findings of the Draft Environmental Impact Statement  
9     in greater detail with the staff members of the  
10    121st Air Refueling Wing, National Guard Bureau, and  
11    the consultant's technical representatives.

12           If you do not wish to provide oral  
13    comments, written comments will be accepted and  
14    given equal consideration. Even if you do make an  
15    oral statement, you are welcome to provide a written  
16    statement to reaffirm the comments you made and to  
17    make any additional comments you would like.

18           Written comments should be sent to the  
19    National Guard Bureau at the address printed on the  
20    comment form that you filled out, or on the website.  
21    The address is also provided on the comment sheets.

22           All relevant, substantive comments will be  
23    included in the administrative record and will be  
24    addressed in the Final Environmental Impact  
25    Statement. The formal comment period for the Draft

1 Environmental Impact Statement ends on March 24,  
2 2014. It is very important for you to realize that  
3 the Ohio Air National Guard and the National Guard  
4 Bureau will be open and responsive to your comments  
5 and concerns throughout the NEPA Process.

6 It is a requirement to inform you that  
7 under the Privacy Act of 1974, your name, address,  
8 and comments, if provided during the NEPA Process,  
9 will be A: Used to compile mailing lists for  
10 sending project reports, brochures, and other  
11 information concerning the Environmental Impact  
12 Statement to those individuals and groups who might  
13 be interested. B: Forwarded to federal, state, and  
14 local agencies, and elected officials. C: The  
15 addresses of private individuals submitting comments  
16 will not, repeat will not, be published in documents  
17 released to the public.

18 Failure to provide the information  
19 requested would prevent delivery of documents and  
20 notification of further developments. However,  
21 documents are available on the project website and  
22 in select libraries, with locations published in  
23 local newspapers.

24 Now, before we proceed with the  
25 presentation, if you have not reviewed a copy of the



9

1 Draft Environmental Impact Statement, copies are  
2 available for you to review while in attendance at  
3 this hearing at each of the information booths.  
4 Further, you may pick up a CD with the document on  
5 it at the check-in desk. There is also a list of  
6 locations where the Environmental Impact Statement  
7 is provided for public review after this meeting in  
8 the informational handouts. If you did not receive  
9 other informational materials that were available at  
10 the entrance, please raise your hand and someone  
11 will provide them to you.

12 At this point, I will turn this over to  
13 Colonel Jones, the Commander for the 121st Air  
14 Refueling Wing.

15 COLONEL JONES: Thank you, your honor.  
16 Good evening, my name is Colonel James Jones, and I  
17 am the Wing Commander for the Ohio Air National  
18 Guard's 121 Air Refueling Wing at the Rickenbacker  
19 International Airport. On behalf of the Ohio Air  
20 National Guard, I want to welcome all of you to  
21 this important public hearing regarding the Draft  
22 Environmental Impact Statement for the proposed  
23 beddown of the KC-46A tanker aircraft. It is our  
24 goal this evening to provide you with information  
25 about the proposed aircraft beddown and the

1 National Environmental Policy Act, commonly  
2 referred to as NEPA, and to ensure your maximum  
3 participation and understanding of this process.

4 I would like to introduce you to  
5 individuals who are here this evening to assist in  
6 answering questions about the aircraft conversion  
7 and to facilitate your participation in commenting  
8 on the findings of the Draft Environmental Impact  
9 Statement.

10 You have already met Colonel Mark Allred,  
11 Judge Advocate, from Headquarters Air Force, Joint  
12 Base Andrews, Maryland. He will be presiding over  
13 this evening's hearing. Next, we have Mr. Roger  
14 Jones, the 121st Air Refueling Wing's Environmental  
15 Manager who will provide you with an overview of the  
16 proposed action and alternatives; and Anne Rowe,  
17 from the National Guard Bureau, who will be  
18 explaining some key considerations regarding the  
19 National Environmental Policy Act.

20 We also have a number of other individuals  
21 who have been involved in the development of the  
22 Environmental Impact Statement. They are from the  
23 Ohio Air National Guard, the National Guard Bureau,  
24 and Cardno TEC, our environmental consultants. They  
25 will be available after the current formal session

11

1 to answer questions and to help facilitate this  
2 process. You will find that any member in uniform  
3 or with an EIS name tag can either answer your  
4 questions or direct you to the right individual to  
5 answer your questions.

6 The greater Columbus community is  
7 important to the 121st Air Refueling Wing, and  
8 community input is valuable to the environmental  
9 analysis. Rickenbacker International Airport is the  
10 current home of the 121st Air Refueling Wing. Many  
11 of our current, as well as retired, members live in  
12 the Columbus area. We are a part of this community.

13 Many of you have been consistently  
14 supportive of the military and of the 121st Air  
15 Refueling Wing. This community helped foster the  
16 development of the Ohio Air National Guard, as well  
17 as the 121st Air Refueling Wing over the years.  
18 This support is and has been deeply appreciated.  
19 Like you, our members live and work in this  
20 community and care deeply about its future. This is  
21 home to us all.

22 The proposed action is for the Air Force  
23 to replace a portion of the existing KC-135 aerial  
24 refueling fleet with KC-46A, which will be a new  
25 aircraft to the Air Force's fleet. As such, the Air

12

1 Force plans to identify locations for the beddown of  
2 a formal training unit, also known as FTU, and the  
3 First Main Operating Base, also known as MOB 1,  
4 which will be led by active duty units. This has  
5 been the subject of a separate Environmental Impact  
6 Statement and is not a part of this discussion  
7 tonight. The Air Force will also beddown the KC-46A  
8 at a Second Main Operating Base, also known as MOB  
9 2, which will be led by an Air National Guard unit.  
10 This hearing is regarding the Second Main Operating  
11 Base beddown only, as the FTU and MOB 1 beddown are  
12 the subject of a separate action.

13 The National Guard Bureau has prepared  
14 this Draft Environmental Impact Statement to analyze  
15 the potential impacts of the MOB 2 KC-46A beddown.  
16 The Draft Environmental Impact Statement analyzes  
17 potential environmental consequences that could  
18 result from the proposed beddown of 12 KC-46A  
19 aircraft at any five alternative Air National Guard  
20 installations, including Forbes Air National Guard  
21 Station, Kansas; Joint Base McGuire-Dix-Lakehurst,  
22 New Jersey; Pease Air National Guard Station, New  
23 Hampshire; Pittsburgh Air National Guard Station,  
24 Pennsylvania; and Rickenbacker Air National Guard  
25 Station, Ohio.

1           The no-action alternative is required by  
2   the National Environmental Policy Act, and was  
3   evaluated also to provide a baseline for  
4   decision-makers. The no-action alternative  
5   evaluates the environmental consequences of not  
6   basing the KC-46A aircraft at any installation.  
7   Under the no-action alternative, no installation  
8   selected would be selected to host the KC-46A for  
9   the Second Main Operating Base.

10           In 2013, the Secretary of the Air Force  
11   announced Pease Air National Guard Station as the  
12   preferred alternative for the KC-46A Second Main  
13   Operating Base. The United States Air Force  
14   selected Pease Air National Guard Station based on  
15   an operational analysis, results of site surveys,  
16   and military judgment factors. We would like to  
17   emphasize that although the preferred alternative  
18   for the beddown has been announced, no final  
19   decision has been made on the basing of the KC-46A  
20   aircraft currently under analysis in this draft EIS.  
21   Until a final decision is made by the Secretary of  
22   the Air Force, all alternatives are still under  
23   consideration and are treated equally.

24           As shown on the poster boards, as a result  
25   of the Proposed Action, there would be a change to

1 the type of aircraft based at the selected  
2 installation; a change in the mix of aircraft using  
3 the associated airspace; changes to staffing and  
4 manpower at the selected location; changes to the  
5 number of airfield operations; as well as minor  
6 required construction, building renovation, and  
7 facility demolition. There would be no new or  
8 modified airspace required to support this action.  
9 The proposed aircraft beddown is estimated to begin  
10 in late 2017 or 2018 for the National Guard Bureau.

11 If Rickenbacker Air National Guard Station  
12 is selected for the MOB 2 KC-46A beddown, all KC-135  
13 aircraft at Rickenbacker Air National Guard Station  
14 will be replaced by 12 KC-46A aircraft, personnel  
15 would increase by 197 individuals, total airfield  
16 operations would increase by 1 percent, and the  
17 acreage off airport-controlled property within the  
18 65 decibel Day-Night Average Sound Level noise  
19 contour would decrease by 72 acres.

20 If Rickenbacker is not chosen for the  
21 beddown of the KC-46A tanker aircraft, the existing  
22 KC-135 will remain at the base for the foreseeable  
23 future.

24 Again, I want to thank you for your  
25 attendance and your interest in this evening.

15

1 Please let me know if I can be of further  
2 assistance, either during or after tonight's formal  
3 proceedings conclude. With that, I will turn over  
4 the hearing to Mr. Roger Jones, Environmental  
5 Manager for the 121st Air Refueling Wing.

6 MR. JONES: Thank you, Colonel Jones.  
7 Good evening ladies and gentlemen and welcome to  
8 the public hearing for the Draft Environmental  
9 Impact Statement. As the Commander indicated, I am  
10 Roger Jones, and I serve as the environmental  
11 manager for the 121st Air Refueling Wing. As a  
12 member of the Air Refueling Wing and of the local  
13 community I am very interested in what happens here  
14 as well. This is an important occasion in which to  
15 discuss this topic and I appreciate your interest,  
16 your participation, and your comments.

17 The Draft Environmental Impact Statement  
18 evaluates impacts to eleven resources by the  
19 proposed action to include Noise, Air Quality,  
20 Safety, Biological Resources, and Cultural  
21 Resources. Other resources evaluated can be  
22 reviewed in the Draft Environmental Impact  
23 Statement. As a result of the draft environmental  
24 analysis, we do not expect the proposed action to  
25 have any significant impacts to any resources.

1           I will speak briefly to most of the  
2   resources I just mentioned; however, more in-depth  
3   information is provided in the Draft EIS document  
4   for all eleven resources.

5           The noise poster board shows baseline  
6   noise contours from existing KC-135 aircraft  
7   operations and proposed noise contours from KC-46A  
8   aircraft operations at Rickenbacker. The analysis  
9   was based on 8,040 allocated flying hours for each  
10   unit, which is a conservative estimate, meaning that  
11   flying hours would most certainly be below that  
12   number for each alternative.

13           As you can see the noise contours would be  
14   slightly reduced by 72 acres off air-controlled  
15   property. The Rickenbacker Air National Guard  
16   Station is located in an area of non-attainment for  
17   particulate matter and ozone. Projected emissions  
18   from the proposed action would not be expected to  
19   exceed established air quality standards. Any  
20   increase in air emissions would be below the  
21   established thresholds for our area and would not be  
22   significant.

23           Under this alternative minor construction  
24   and renovation of facilities would be required  
25   resulting in approximately 8.5 acres of temporary



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1 soil disturbance and 0.3 acres of new impervious  
2 surface. There would be no impacts to wetlands,  
3 floodplains, or federally listed species. In  
4 addition, the Air National Guard initiated  
5 government-to-government coordination with all  
6 federally recognized tribes affiliated with the  
7 area. To date, from the responses we have received,  
8 no tribe has indicated that any traditional  
9 resources occur in the project area.

10 We look forward to input provided from the  
11 public and affected communities as we proceed  
12 through the NEPA Process. Once the requirements of  
13 NEPA are complete, the Air Force will make its final  
14 basing decision. Thank you for your attention, and  
15 I will now turn over the presentation to Ms. Anne  
16 Rowe, the National Guard Bureau Project Manager for  
17 the Environmental Impact Statement to discuss the  
18 NEPA Process.

19 MS. ROWE: Thank you, Roger. I will  
20 briefly summarize the NEPA Process. The National  
21 Environmental Policy Act, commonly referred to as  
22 NEPA, aids federal agency decision-makers in  
23 determining the future course of federal actions.  
24 It is the objective of NEPA to ensure that  
25 decision-makers have environmental information and

1 public input to facilitate informed decisions.

2           The goal of preparing the Environmental  
3 Impact Statement is to support sound decisions  
4 through the assessment of potential environmental  
5 impacts, as well as involving the public in the  
6 process. The result of this analysis and other  
7 relevant factors will be considered before a  
8 decision is made by the Air Force on this proposal.

9           The Draft Environmental Statement or Draft  
10 EIS, which was made available for your viewing at a  
11 number of public locations beginning on February 7,  
12 2014, presents the findings and analysis of the  
13 proposed action and alternatives on environmental  
14 criteria set forth by NEPA. Tonight's public  
15 hearing is the second of two public comment forums  
16 that provide the public an opportunity to comment on  
17 the scope and content of the Environmental Impact  
18 Statement. The first forum, called a scoping  
19 meeting, was held here and at the other alternative  
20 locations in June of 2013.

21           Comments have also been solicited from  
22 local, state, and Federal agencies that have  
23 jurisdiction over particular resources, such as air  
24 and water quality. That process began with the  
25 release of the Notice of Intent to prepare an

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1 Environmental Impact Statement on May 17, 2013, and  
2 continues today with public and agency review of the  
3 Draft Environmental Impact Statement.

4 This hearing gives the potentially  
5 affected communities an opportunity to comment on  
6 the analysis that have been presented in the Draft  
7 Environmental Impact Statement.

8 The formal public comment period ends on  
9 March 24, 2014. Following this period, oral and  
10 written comments received from both the public and  
11 government agencies will be reviewed by the Air  
12 Force and the National Guard Bureau. We will  
13 continue to accept comments throughout the NEPA  
14 Process. However, it is more difficult to give your  
15 comments the consideration they deserve as the  
16 process winds down closer to the release of the  
17 Final Environmental Impact Statement or Final EIS.

18 After all comments on the Draft  
19 Environmental Impact Statement have been addressed,  
20 substantive comments will be reviewed and responded  
21 to in the Final EIS. The Final Environmental Impact  
22 Statement will be released to the public for a  
23 30-day period before a record of decision is signed  
24 by the Secretary of the Air Force or their designee.  
25 The Record of Decision is scheduled to be signed in

1 June of 2014.

2 This concludes the explanation of both the  
3 KC-46A beddown proposal, as well as the NEPA  
4 Process. I now return the program back to our  
5 hearing officer. Thank you.

6 COLONEL MARK ALLRED: Thank you, Anne.  
7 The next phase of our hearing involves one, the  
8 answering of questions from the audience and two,  
9 the opportunity for members of the audience to make  
10 comments. Normally at this point when we have a  
11 number of questions that have been filled out we  
12 take a break to give our panel a chance to look at  
13 those questions and decide who can best handle  
14 those questions. At this point I have not received  
15 any cards of any questions from anyone in the  
16 audience.

17 Is there anyone who wishes to fill out a  
18 question card and does anyone have a question for  
19 our panel? I want to make sure that everyone has an  
20 opportunity to do that. We won't drag that  
21 particular phase out as longer than is necessary.

22 The next phase is to give anyone who would  
23 like to do so the opportunity to make a public  
24 comment. I do have one card from Mr. Michael  
25 Hartley from the Columbus Chamber. Please,

21

1 Mr. Hartley, take your place here and speak to the  
2 audience.

3 MR. HARTLEY: Thank you very much for the  
4 opportunity to give public comment. First of all,  
5 thank you for the service of those in this audience  
6 to our country and our community. One of the  
7 things I want to talk about here is the aspect of  
8 what you see, the folks in attendance, the  
9 community support. When this mission was announced  
10 and the opportunity for the mission was announced,  
11 you saw here in the Columbus region in central Ohio  
12 full community support. This included local  
13 elected officials, state officials, congressional  
14 delegation, all of the Ohio congressional  
15 delegation and both U.S. senators.

16 The packet that we put together included  
17 letters of support from all of those entities,  
18 included in that also is the business community.  
19 The Columbus Chamber represents 1,600 businesses,  
20 approximately a quarter of a million employees.  
21 Along with the small and medium size businesses you  
22 have the Columbus partnership, which represents the  
23 large fifty businesses in the Columbus region.

24 We have continued to work including a  
25 January 17th, briefing here at Rickenbacker where

1 we brought the community together with Senator Rob  
2 Portman. We spent a full day here and learned, I  
3 think, A through Z of what goes on here at  
4 Rickenbacker.

5 This community and this group is  
6 committed, regarding this mission, to help drive  
7 down the cost of this facility. Also, we know of no  
8 environmental obstacles that would prevent locating  
9 the KC-46A here at Rickenbacker. We fully believe  
10 that Rickenbacker can serve this mission well. We  
11 are committed if the mission does come here, as a  
12 community, to help connect any active duty to  
13 housing and other quality of life accommodations and  
14 services.

15 I will say one final thing and remind  
16 everyone here of the historical tradition of the  
17 Rickenbacker Air Force Base. As you walk in you see  
18 the historical markers. I believe many folks  
19 believe that Eddie Rickenbacker would be very  
20 pleased and feel it was appropriate for the KC-4A's  
21 mission to be here.

22 With that I appreciate very much and thank  
23 you very much for the time.

24 COLONEL MARK ALLRED: Thank you, sir.  
25 Again, we want to ensure that everyone has ample

23

1 opportunity to ask any questions or make any  
2 comments. Anyone else who would like to ask a  
3 question or make any comment? Apparently not.  
4 This evening's goal was to provide you with open  
5 communication and accurate information to ensure  
6 your informed participation in the NEPA Process. I  
7 hope that we have achieved that goal. Please feel  
8 free to visit the information booths and ask any  
9 additional questions that you may have regarding  
10 this proposed action. You have an opportunity  
11 during the formal comment period ending March 24,  
12 2014, to provide written comments. Please stop by  
13 the registration booth to get any additional  
14 materials that you need. Thank you very much and  
15 have a good evening.

16 (Thereupon, the hearing was concluded at  
17 6:32 o'clock p.m.)

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1     STATE OF OHIO                     )

2     COUNTY OF MONTGOMERY )       SS:  CERTIFICATE

3                     I, Wqueana N. George, a Notary Public  
4     within and for the State of Ohio, duly commissioned  
5     and qualified,

6                     DO HEREBY CERTIFY that the above-named  
7     hearing, was reduced to writing by me  
8     stenographically in the presence of the parties and  
9     thereafter reduced to typewriting.

10                    I FURTHER CERTIFY that I am not a relative  
11    or Attorney of either party nor in any manner  
12    interested in the event of this action.

13                    IN WITNESS WHEREOF, I have hereunto set my  
14    hand and seal of office at Dayton, Ohio, on this  
15    13th day of March, 2014.

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19                                   WQUEANA N. GEORGE  
20                                   NOTARY PUBLIC, STATE OF OHIO  
21                                   My commission expires 02-15-2015

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**COMMENTERS ON THE DRAFT EIS – KC-46A MOB 2 BEDDOWN**

Organization (Private Citizen, etc.)	Commenter Name	Comment Number	Page # of Comment Letter
U.S. Senate	Kelly Ayotte	1	B6-223
U.S. Senate	Jeanne Shaheen	1	B6-223
Private Citizen	Jim Colbert	2	B6-225
Department of Interior, Office of Environmental Policy and Compliance	Andrew Raddant	3	B6-226
Federal Aviation Administration	Glenn Helm, P.E.	4	B6-227
Private Citizen	H.R. Bower	5	B6-228
City of Dublin	Dana McDaniel	6	B6-229
City of Groveport	Marsha Hall	7	B6-230
Newark City Mayor	Jeff Hall	8	B6-231
City of Upper Arlington	Theodore Staton	9	B6-232
Private Citizen	Anonymous	10	B6-234
Private Citizen	Anonymous	11	B6-235
Private Citizen	Robert Burelli	12	B6-236
Columbus City Council	Hearcel Craig	13	B6-237
Private Citizen	Marilyn McCoy	14	B6-239
Private Citizen	Victor Wilson	15	B6-240
Private Citizen	Kristin Cruikshank	16	B6-241
Private Citizen	Richard Emmons	17	B6-242
Fairfield County Board of Commissioners	Steve Davis	18	B6-243
Fairfield County Board of Commissioners	Dave Levacy	18	B6-243
Fairfield County Board of Commissioners	Mike Kiger	18	B6-243
Private Citizen	David Jackson	19	B6-244
Private Citizen	Donald Kershner	20	B6-245
Private Citizen	Joseph Machado	21	B6-246
Private Citizen	William McNeer	22	B6-248
Private Citizen	Michael Myers	23	B6-249
Private Citizen	LtCol Rex Mykrantz	24	B6-250
Private Citizen	Marlene Packer	25	B6-251
Private Citizen	Jason Porter	26	B6-252
Private Citizen	Laurence Reed	27	B6-253
Columbus-Franklin County Finance Authority	Jean Carter Ryan	28	B6-254
Private Citizen	Richard Shroeder	29	B6-256
Private Citizen	Senator Joe Uecker	30	B6-257
Private Citizen	Martin Stires	31	B6-258
Private Citizen	Daniel Snyder	32	B6-259
Private Citizen	Pete Wilkinson	33	B6-260
Private Citizen	G. Taylor	34	B6-263
City of Topeka	Larry Wolgast	35	B6-264
Governor	Margaret Wood Hassan	36	B6-265
Private Citizen	Barbara N Hayes	37	B6-267
Private Citizen	Nancy Holloway	38	B6-268

*Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS*

*Appendix B6 Public Hearing Transcripts, Responses to Comments, and*

*Written Comments on the Draft EIS*

Organization (Private Citizen, etc.)	Commenter Name	Comment Number	Page # of Comment Letter
Private Citizen	Emmanuel Kidd	39	B6-269
House of Representatives, New Hampshire	Ann McLane Kuster	40	B6-270
Private Citizen	Ronald Douglas Manuel	41	B6-271
Mayor of Canal Winchester	Michael Ebert	42	B6-276
The New England Council	James Brett	43	B6-277
Ohio Historical Society	Justin Cook	44	B6-278
Ohio Task Force	Victor Wilson	45	B6-280
Pennsylvania Historical and Museum Commission	Douglas McLearen	46	B6-281
Penobscot Nation Tribal Historic Preservation Office	Chris Sockalexis	47	B6-283
Private Citizen	Joseph Pescatello	48	B6-284
Portsmouth Chamber of Commerce	Doug Bates	49	B6-285
State Senator	Matt Smith	50	B6-286
U.S. Senator	Pat Roberts	51	B6-288
U.S. Senator	Jerry Moran	51	B6-288
House of Representatives, Kansas	Lynn Jenkins	51	B6-288
House of Representatives, Kansas	Mike Pompeo	51	B6-288
House of Representatives, Kansas	Kevin Yoder	51	B6-288
House of Representatives, Kansas	Tim Huelskamp	51	B6-288
Service Credit Union	Gordon Simmons	52	B6-291
U.S. Senator	Jeanne Shaheen	53	B6-296
Board of Commissioners, Shawnee County, Kansas	Robert Archer	54	B6-297
Board of Commissioners, Shawnee County, Kansas	Kevin Cook	54	B6-297
Board of Commissioners, Shawnee County, Kansas	Michele Buhler	54	B6-297
House of Representatives, New Hampshire	Carol Shea-Porter	55	B6-298
Private Citizen	Robert Sheppard	56	B6-299
Senator NH District 21	Martha Fuller Clark	57	B6-301
Private Citizen	Thomas Gross	58	B6-302
Greater Topeka Chamber of Commerce	Doug Kinsinger	59	B6-303
Greater Topeka Chamber of Commerce	Neil Dobler	59	B6-303
WIBW Channels	Jim Ogle, Jr.	59	B6-303
Fidelity State Bank and Trust	Allan Towle	59	B6-303
Cox Communications	Coleen Jennison	59	B6-303
M-C Industries, Inc.	Karla Clem	59	B6-303
Payless Shoe Source	Curtis Sneden	59	B6-303
Premier Employment Solutions	Paul Bossert	59	B6-303
Capital Federal	John Dicus	59	B6-303
Washburn University	Randy Pembroke	59	B6-303
Express Employment Professionals	Diana Ramirez	59	B6-303
Jayhawk File Express, LLC	Cheryl Creviston	59	B6-303

Organization (Private Citizen, etc.)	Commenter Name	Comment Number	Page # of Comment Letter
Kansas Medical Mutual Insurance Company	Kurt Scott	59	B6-303
Mickey's Promotions	Michaela Shaver	59	B6-303
Mars Chocolate North American	Bret Spangler	59	B6-303
Frito-Lay, Inc.	Allen Moore	59	B6-303
Dillons/Kroger	Kim Svoboda	59	B6-303
U.S. Fish and Wildlife Service	Mary Knapp	60	B6-306
U.S. Environmental Protection Agency, Region 1	Curtis Spalding	61	B6-309
Town of Hampton	Frederick Welch	62	B6-317
Westar Energy	Mark Ruelle	63	B6-318
U.S. Fish and Wildlife Service, Kansas Ecological Field Office	Michele McNulty for Heather Whitlaw	64	B6-320
Canal Winchester Area Chamber of Commerce	Eric Wymer	65	B6-321
Canal Winchester Area Chamber of Commerce	Greg Chamblin	65	B6-321
Canal Winchester Area Chamber of Commerce	Amanda Lemke	65	B6-321
City of Dublin	Michael Keenan	66	B6-322
City of Dublin	Marsha Grigsby	66	B6-322
Columbus Chamber of Commerce	Michael Dalby	67	B6-328
Columbus Regional Airport Authority	Elaine Roberts	68	B6-329
Destination Canal Winchester	Bruce Jarvis	69	B6-332
The Franklin County Board of Commissioners	Marilyn Brown	70	B6-334
The Franklin County Board of Commissioners	Paula Brooks	70	B6-334
The Franklin County Board of Commissioners	John O'Grady	70	B6-334
The Franklin County Board of Commissioners	Marilyn Brown	71	B6-335
The Franklin County Board of Commissioners	Paula Brooks	71	B6-335
The Franklin County Board of Commissioners	John O'Grady	71	B6-335
Governor	Sam Brownback	72	B6-336
Mayor of Canal Winchester	Michael Ebert	73	B6-337
Mid-Ohio Regional Planning Commission	William Murdock	74	B6-338
New Hampshire Department of Environmental Services	Timothy Drew	75	B6-339
New Jersey Department of Environmental Protection	Ruth Foster	76	B6-344
Ohio Attorney General	Mike DeWine	77	B6-351
Pickaway County Board of County Commissioners	Jay Wippel	78	B6-352
Pickaway County Board of County Commissioners	Brian Stewart	78	B6-352
Pickaway County Board of County	Harold Henson	78	B6-352

*Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS*

*Appendix B6 Public Hearing Transcripts, Responses to Comments, and*

*Written Comments on the Draft EIS*

Organization (Private Citizen, etc.)	Commenter Name	Comment Number	Page # of Comment Letter
Commissioners			
Great Bay Neurosurgical Associates	Melvin Prostkoff, M.D.	79	B6-353
Southeastern Franklin County Chamber of Commerce	Robert Garvin	80	B6-355
State Senator, District 16	Jim Hughes	81	B6-356
Private Citizen	Dr. Calvin Taylor	82	B6-357
U.S. Fish and Wildlife Service, New England Field Office	Anthony Tur	83	B6-358
U.S. Army Corps of Engineers	Joshua Shaffer for Jon Coleman	84	B6-359
U.S. Fish and Wildlife Service, New England Field Office	Thomas Chapman	85	B6-367
Board of Commissioners, Shawnee County, Kansas	Robert Archer	86	B6-369
Board of Commissioners, Shawnee County, Kansas	Kevin Cook	86	B6-369
Board of Commissioners, Shawnee County, Kansas	Michele Buhler	86	B6-369
Private Citizen	Allan Towle	87	B6-371
Mayor of Portsmouth	Bob Lister	88	B6-373
Private Citizen	Renee Plummer	89	B6-374
Pease Development Authority	Bill Hopper	90	B6-375
Private Citizen	John Frink	91	B6-376
Office of Senator Matt Smith	Daniel Alwine	92	B6-378
Columbus Chamber	Michael Hartley	93	B6-379
Ohio U.S. Fish and Wildlife Service	Jeromy Applegate	94	B6-380
U.S. Fish and Wildlife Service, Pennsylvania Field Office	Lori Zimmerman	95	B6-381
Tuscarora Nation	Bryan Printup	96	B6-385
New Jersey Historic Preservation Office	Jonathan Kinney	97	B6-386

**COMMENTS ON THE DRAFT EIS – KC-46A MOB 2 BEDDOWN**

Comment Number	Name/Agency	Date	Comment	Response
4-1	Glenn Helm, P.E. Environmental Specialist FAA	3/3/14	<p>If Forbes Field is the selected location, the project will require formal notice and review for airspace review under Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace.</p> <p>I recommend a 120-day notification to accommodate the review process and issue our determination letter. Proposals may be filed with FAA at <a href="http://oaaaa.faa.gov">http://oaaaa.faa.gov</a>.</p>	Although no facilities are proposed that would affect navigable airspace, Forbes ANG will comply with 14 CFR Part 77 <i>Objects Affecting Navigable Airspace</i> , as appropriate, should they be selected to host the KC-46A. This has been added to all five locations in the safety sections.
4-2	Glenn Helm, P.E. Environmental Specialist FAA	3/3/14	<p>I encourage you to file a request for airspace study as quickly as possible if and when Forbes Field is selected in order to determine if there are any potential effects to the airport from the proposed project. Be sure to submit information for any roads, objects, and temporary construction equipment (e.g. cranes).</p> <p>More information on this process may be found at: <a href="http://www.faa.gov/airports/central/engineering/part77/">http://www.faa.gov/airports/central/engineering/part77/</a>.</p>	Although no facilities are proposed that would affect navigable airspace, Forbes ANG will comply with 14 CFR Part 77 <i>Objects Affecting Navigable Airspace</i> , as appropriate, should they be selected to host the KC-46A.
36-1	Margaret Wood Hassan, Governor	3/6/14	<p>The Pease Air National Guard Base is the ideal location for the KC-46A air refueling tankers. The base is strategically located on the East Coast of the United States, translating to considerable time and cost savings for all eastbound support operations. In addition, much of the infrastructure needed to successfully implement the KC-46A aircraft is already in place at Pease. This infrastructure includes the longest Air National Guard runway and parking ramp in the northeast, air traffic control, security and customs, and fire protection.</p> <p>The 157th Air Refueling Wing and the 64th Air Refueling Squadron stationed at Pease are the best options to support the operation of the new KC-46 aircraft.</p> <p>Bringing the KC-46A air refueling tankers to Pease will also benefit our Seacoast communities and economy, bringing more jobs to the region and helping the base generate an even greater positive economic impact.</p>	Thank you for your comment. As described in Section 2.2 of the Draft EIS, the USAF strategic basing process used several operational and other criteria to identify candidate and alternative bases for the MOB 2 missions. The criteria included 1) runway of at least 7,000 feet in length, 2) the presence of an ANG Wing on the installation, and 3) the installation had to be located in the continental United States. The EIS process is focused on evaluating each alternative to inform the Secretary of the Air Force on

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and***

***Written Comments on the Draft EIS***

Comment Number	Name/Agency	Date	Comment	Response
				<p>potential environmental impacts associated with each base. The USAF considers public comments in making decisions. We appreciate your participation in the environmental impact analysis process.</p> <p>As discussed in Section 4.3.10, under Alternative #3, the KC-46A mission would add an additional 171 military positions (increase in 115 full-time positions and 56 traditional Guard positions). Combined with their approximately 233 family members, this would represent less than 0.08 percent of Rockingham County.</p>
41-1	Ronald Douglas Manuel	3/23/14	<ul style="list-style-type: none"> <li>• The NAAQS and are below the pollutant emissions for the PSD/de minimis and are not subject to this regulation.</li> <li>• Rickenbacker ANG 121 ARW is already flying the required hours/sorties required by the new KC-46A aircraft.</li> <li>• The maintenance capability is already in place (now supporting 18 KC-135R's and their training commitments) with a full maintenance capability rate.</li> <li>• There are two runways that fully operational and they are both over 2 miles long.</li> <li>• The civilian version of the aircraft is already flown by some of our ANG pilots, this would reduce the training needed for the new refueling aircraft (economies).</li> <li>• The total airfield operations rate would remain at about the same level.</li> </ul>	<p>Thank you for your comment. Sections 3.5.2 and 4.5.2 discuss both baseline and projected emissions under Alternative #5. As discussed in these sections, the USEPA has classified the Columbus area, including all of Franklin County, as nonattainment for the O<sub>3</sub> and PM<sub>2.5</sub> NAAQS. The region is designated attainment/unclassified area for all other criteria pollutants. As such, they are subject to <i>de minimis</i></p>

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***

Comment Number	Name/Agency	Date	Comment	Response
			<ul style="list-style-type: none"> <li>• Rickenbacker has fast delivery of parts when needed with commercial carriers (FedEx and UPS, and others) with around the clock delivery and the DSCC and DFAS installation are just up the road from the base.</li> <li>• Our communities around the airfield are used to the activity of the ANG aircraft. Some of the people in the towns don't even now there is a tanker unit at Rickenbacker.</li> <li>• As a community we need these new aircraft to continue the extraordinary conviction and integrity of the "troops" of the Ohio ANG to fly in support of any conflict in the world or of these United States.</li> <li>• The community would not know of the unit's activity during the week if not for the reporting of the local news outlets. The city of Columbus Chamber of Commerce (who have at least 1600 local business support) fully stand behind the unit acquiring the new KC-46A.</li> <li>• The Ohio ANG is the most efficient and cost effective way of using these aircraft to their full capabilities in support of US Air Force missions.</li> <li>• The towns around RANGS have a large population of people with the technical expertise which will provide a large base of support for new members for the full-time force and the added personnel for the KC-46A.</li> <li>• Our unit and its members and have received many awards from the local communities and from communities around the world at deployed locations for their support in many missions.</li> <li>• And the communities could use the new jobs for the new aircraft to help support the local economy.</li> </ul>	thresholds. As discussed in Section 4.5.2, projected emissions would be expected to be below <i>de minimis</i> thresholds. As described in Section 2.2 of the Draft EIS, the USAF strategic basing process used several operational and other criteria to identify candidate and alternative bases for the MOB 2 missions. The criteria included 1) runway of at least 7,000 feet in length, 2) the presence of an ANG Wing on the installation, and 3) the installation had to be located in the continental United States. The EIS process is focused on evaluating each alternative to inform the Secretary of the Air Force on potential environmental impacts associated with each base. The USAF considers public comments in making decisions. We appreciate your participation in the environmental impact analysis process.
44-1	Justin Cook, Ohio Historical Society	3/10/14	Appendix B of the Draft EIS contains a September 12, 2013, letter and associated Attachments 1, 2, and 4 from Robert Dogan of the NGB to Lisa Adkins of OHPO initiating Section 106 consultation for this project and concluding that "a potential adverse effect to Hangar 885 (at Rickenbacker ANG) may result from this undertaking." A check of the database that we use to track Section 106-related correspondence suggests that OHPO did not receive Mr. Dogan's September 12, 2013, letter.	Letter was resubmitted and Rickenbacker ANG and the Ohio SHPO have developed a Programmatic Agreement stating that if Rickenbacker ANG is selected to host the MOB 2 scenario, further consultation

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***



Comment Number	Name/Agency	Date	Comment	Response
			Please re-submit this correspondence and the associated attachments - including Attachment 3 (Draft Description of the Proposed Action and Alternatives), which was not included in Appendix B of the Draft EIS - so that we can begin consultation intended to avoid, minimize, or mitigate the adverse effect on historic properties that will apparently result from project implementation.	would be conducted to minimize and mitigate potential adverse effects to these buildings.
46-1	Douglas McLearen, Pennsylvania Historical and Museum Commission	3/10/14	Based on our survey files, which include both archaeological sites and standing structures, and the information you provided, it is our opinion that this project has no potential to affect historic properties [Pittsburgh]. Therefore, your responsibility for consultation with the State Historic Preservation Office for this project is complete. Should you become aware, from any source, that historic or archaeological properties are located at or near the project site, please notify the Bureau for Historic Preservation at (717) 783-8946.	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.
47-1	Chris Sockalexis, Penobscot Nation Tribal Historic Preservation Office	2/28/14	The Penobscot Nation would like notification if there is to be a significant change in the flight patterns and a significant change in the airspace that will be utilized during these missions [Pease].	Under the Proposed Action there is no significant change in the flight patterns or in the airspace that will be utilized during these missions. If this changes, the Penobscot Nation will be notified.
47-2	Chris Sockalexis, Penobscot Nation Tribal Historic Preservation Office	2/28/14	The Penobscot Nation concurs with the Cultural Resources study that there would be no adverse effect upon any Penobscot cultural and/or historical interests within the Project Boundary of this Proposed Action. The Penobscot Nation also concurs that all other potential environmental impacts associated with this Proposed Action will be minimal [Pease].	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.
48-1	Joseph Pescatello	3/10/14	I'm writing to express my concern over locating more refueling tankers at Pease ANG base in New Hampshire. Pease is nestled squarely in a highly residential area and residents for miles around already suffer the effects of regular jet traffic from the existing KC-135s stationed there.  Our homes, schools, parks, churches, etc. already have to live with unhealthy noise at all hours, seven-days-a-week. The smell of jet fuel is overwhelming at times in neighborhoods around the base. There is also a wildlife sanctuary located, literally, at the end of the runway at Pease.	Analysis has indicated that there would be no significant environmental impacts associated with the proposed beddown at Pease ANG.  Acreage within the 65 dB DNL (and greater) noise contour would increase by 135 acres.

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***



Comment Number	Name/Agency	Date	Comment	Response
			<p>I'm very afraid that adding more tankers will have a terrible effect on the environment for both the people and animals who live here.</p> <p>This area is a quiet enclave in a pristine area on the New England seacoast. As a long-term resident, I urge you to please consider other locations for the new tankers and leave the New Hampshire seacoast as it is.</p>	<p>Of this increase in acreage, 4 acres would be off airport-controlled property.</p> <p>Impacts to wildlife species from operational noise would be expected to be minor due to the slight increase in noise and the temporary nature of construction. Impacts to state listed species would be minor. No federally listed species or critical habitat is known to occur on Portsmouth IAP; therefore, there would be no impacts to federally listed species.</p>
50-1	Matt Smith, State Senator	3/24/14	<p>In fact, the draft finds there will be a decrease in noise disturbance and the existing facilities for fire response and crash recovery meet the KC-46A beddown requirements [Pittsburgh].</p> <p>The draft EIS also notes the 171st has recently completed their 53rd consecutive year and over 230,000 flying hours without a Class-A mishap. These factors make the 171st a strong candidate for selection to house the KC-46A. As you consider the viability of this site, I also encourage you to consider the financial and operational advantages and efficiencies that make the 171st uniquely suited to serve as the MOB 2 of the new KC- 46A tanker fleet. It is my understanding the 171st was chosen to be one of five alternative locations based on several criteria, including, but not limited to: its strategic location within a 90 minute flight time to 70% of the U.S. population which also covers six FEMA Regions, and its collaboration with the Pittsburgh International Airport, which provides the unit with access to four runways, inexpensive service agreements with ACAA fire and rescue operations, world-class snow removal operations, and around-the-clock tower support with no air traffic restrictions. This cost savings agreement, in addition to the nominal infrastructure expenses required to convert existing facilities to accommodate new KC-46A tankers, can save the USAF millions in</p>	<p>Thank you for your comment. Section 3.4.3.2 discusses Class A mishaps and confirms this record.</p> <p>The current FAR Part 150 data identified 321,436 total aircraft operations that occurred at Pittsburgh IAP during the 12-month period ending March 2006. Per the request of the ACAA, the current approved and published FAR Part 150 Noise Compatibility Program Update for Pittsburgh IAP is used as the baseline for this analysis.</p> <p>As shown in Section 4.4.1.1, under Alternative #4, the</p>

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and***

***Written Comments on the Draft EIS***

Comment Number	Name/Agency	Date	Comment	Response
			operational expenses.	<p>DNL noise contours would decrease slightly in the areas of arrivals and departures from the DNL baseline contours because of fewer KC-46A airfield operations than depicted in the approved FAR Part 150 and the KC-46A is generally a quieter aircraft (5 dB quieter on landing and 1 dB louder on take-off) than the KC-135.</p> <p>As described in Section 2.2 of the Draft EIS, the USAF strategic basing process used several operational and other criteria to identify candidate and alternative bases for the MOB 2 missions. The criteria included 1) runway of at least 7,000 feet in length, 2) the presence of an ANG Wing on the installation, and 3) the installation had to be located in the continental United States. The EIS process is focused on evaluating each alternative to inform the Secretary of the Air Force on potential environmental impacts associated with each base. The USAF considers public comments in making decisions. We appreciate your participation in the environmental impact</p>

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				analysis process.
54-1	Robert Archer, Kevin Cook, and Michele Buhler, Board of Commissioners, Shawnee County, Kansas	3/3/14	Forbes Field has excellent facilities and would easily house the KC-46A and additional Airmen.	Thank you for your comment. As described in Section 2.2 of the Draft EIS, the USAF strategic basing process used several operational and other criteria to identify candidate and alternative bases for the MOB 2 missions. The criteria included 1) runway of at least 7,000 feet in length, 2) the presence of an ANG Wing on the installation, and 3) the installation had to be located in the continental United States. The EIS process is focused on evaluating each alternative to inform the Secretary of the Air Force on potential environmental impacts associated with each base. The USAF considers public comments in making decisions. We appreciate your participation in the environmental impact analysis process.
56-1	Robert Sheppard	3/12/14	According to the USAF Environmental Impact Study, the NHANGS is currently responsible for 16% of flight operations at Pease International Airport (IAP). Living roughly four miles from the runway I am occasionally aware of the noise from circling air tankers while working around my yard, though appreciative of the airport restrictions, which limit low approaches or touch-and-go's between 11pm and 7am, and before noon on Sundays. At least in this neighborhood NNE of the runway's mid-point we notice much higher levels of noise from news media helicopters and corporate jets than military aircraft. It is my understanding, the KC-46A replacement aircraft will operate at or below current noise levels of the current air tanker.	The current FAR Part 150 data identified 321,436 total aircraft operations that occurred at Pittsburgh IAP during the 12-month period ending March 2006. Per the request of the ACAA, the current approved and published FAR Part 150 Noise Compatibility Program Update for Pittsburgh IAP is

*Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS*

*Appendix B6 Public Hearing Transcripts, Responses to Comments, and*

*Written Comments on the Draft EIS*

Comment Number	Name/Agency	Date	Comment	Response
				used as the baseline for this analysis.
56-2	Robert Sheppard	3/12/14	<p>Professionally I work with corporations to reduce their reliance on fossil fuels, decreasing the impact on climate change. The proposal to replace the existing fleet of eight KC-135's and 1 backup with the newest generation of air tanker is a positive step from an environmental standpoint. The US Environmental Protection Administration recently designated South East region of NH as an air-quality attainment area. This represents a positive improvement in terms of ozone due to a number of factors including a more comprehensive focus on energy efficiency at both the state and local level.</p> <p>Employing an aircraft that consumes less fuel at and assuming the current level of 6,140 annual field operations as stated in the EIS, the NH ANGTS should not have an adverse impact on the region's air quality or sensitive environmental places. Thirty-four percent of the area adjoining IAP consists water; the Piscataqua-Salmon Falls River Watershed, Great and Little Bays, Portsmouth Harbor and the Atlantic Ocean. The statistics mention the 157 ARW has not suffered a major mishap in a decade, reported just three emergency fuel jettisons 2011-2012, and fewer than 20 BASH collisions per year, all well within acceptable standards for a military unit flying in close proximity to a developed area.</p>	<p>Thank you for your comment. Section 3.3.2 attainment status for the ROI. The USEPA had previously classified the Boston-Manchester-Portsmouth area as a moderate nonattainment area for the 1997 O<sub>3</sub> standard. On January 31, 2013, the USEPA formally redesignated southeastern New Hampshire as an attainment area for the 1997 O<sub>3</sub> standard. The region is therefore considered a maintenance area for O<sub>3</sub>. The region is designated attainment/unclassified area for all other criteria pollutants.</p> <p>Section 3.3.3 confirms these BASH and fuel jettison statistics for the 157 ARW.</p>
56-3	Robert Sheppard	3/12/14	<p>My only concern is that the EIS provides an incomplete picture of the NHANG's impact on the local economy. The data included in the report (3-82) includes Rockingham County, the town of Newington, City of Portsmouth and NH in terms of education, employment, housing and population. The next section goes on to list the Portsmouth Naval Shipyard and the UA Local 488 Marine Pipefitters union, as two of the area's four principal employers. However, both of those entities are located just across the state line in Kittery, Maine. As a resident of this region since 1984, I believe that a more accurate assessment would include York County Maine, Eliot, Kittery and York, ME since many of the NHANG employees actually reside on this side of the border,</p>	<p>Thank you for your comment. The increase in personnel would be minimal, and it is expected that many, if not a majority of the individuals would be already living in the vicinity. Therefore, having the smaller region of influence around the installation was deemed to provide accurate results.</p>

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***

Comment Number	Name/Agency	Date	Comment	Response
			shopping in our stores, and sending their children to our schools. While one might find this a minor point, the impact of the 157 <sup>th</sup> operations on the entire region does come into play in the event of a Defense Base Closure and Realignment process, which may draw from previous government documents. For this reason, I would encourage the USAF to include expanded commentary in the appropriate section of the final EIS.	
61-1	Curtis Spalding, USEPA, Region 1	3/24/14	Miscellaneous Although the DEIS had a Glossary, many of the acronyms were not listed. A complete list of acronyms used should be provided in the FEIS.	A list of acronyms is listed at the beginning of the document. The glossary includes definitions of select words.
61-2	Curtis Spalding, USEPA, Region 1	3/24/14	Pease ANGS Alternative Air Quality--General Conformity The Pease ANGS site is not subject to General Conformity for the 2008 eight-hour ozone National Ambient Air Quality Standard (NAAQS, the 2008 ozone standard), as all of New Hampshire has been designated unclassifiable/attainment for the 2008 ozone standard. However, the General Conformity requirements currently remain in place for the 1997 eight-hour ozone NAAQS for the Boston-Manchester-Portsmouth (SE) NH area. On June 6, 2013 (78 FR 34178), EPA published its proposed rule for “Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements,” where EPA proposed revocation of the 1997 ozone standard. EPA has not yet finalized this regulation.  EPA approved redesignation of the Boston-Manchester-Portsmouth (SE), New Hampshire moderate 8-hour ozone nonattainment area to attainment for the 1997 eight hour ozone NAAQS and the initial 10-year ozone maintenance plan for this area on Thursday, January 31, 2013; (78 FR 6741). We point out that the Boston-Manchester Portsmouth (SE), NH maintenance area is within the Ozone Transport Region. As such, General Conformity regulations establish applicability rates for ozone maintenance areas inside an ozone transport region as equal to or exceeding the rate of 100 tons per year of nitrogen oxides (NOx) and/or 50 tons per year of volatile organic compounds (VOCs) see 40 CFR §93.153(b)(2).	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.

*Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS*

*Appendix B6 Public Hearing Transcripts, Responses to Comments, and*

*Written Comments on the Draft EIS*

Comment Number	Name/Agency	Date	Comment	Response
			<p>Applicability rates are based on the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action. The annual operational emissions that would result from KC-46A operations at Pease ANG is calculated at 158.92 tons of NO<sub>x</sub> and 16.93 tons of VOC as stated in Table 4.3.2-1 “Comparison of Baseline and Proposed Annual Operational Emissions, 157 ARW,” on page 4-66 of the Draft EIS (also Table 3.3-2 on page 02-5). However, concurrent with the beddown of the 12 KC-46A, twelve existing KC-135 aircraft would be retired out of the Air National Guard fleet. The net annual emissions from the proposed Pease ANG Alternative are calculated at 83.60 tons of NO<sub>x</sub> and 13.31 tons of VOC. We concur with the DEIS that the annual level of NO<sub>x</sub> and VOC from the Pease ANG Alternative are below the General Conformity applicability rate of 100 tons per year of NO<sub>x</sub> and 50 tons per year of VOC. Therefore, General Conformity is not triggered.</p>	
61-3	Curtis Spalding, USEPA, Region 1	3/24/14	<p><b>Stormwater</b></p> <p>The project will require coverage under a National Pollution Discharge Elimination System (NPDES) construction general permit (CGP) for land disturbance of one or more acres of land. If this threshold is surpassed, the Pease ANG would need to submit a Notice of Intent and obtain coverage under the COP and develop and implement a stormwater pollution prevention plan meeting the requirements of the most recently issued CGP.</p> <p>The CGP is available at: <a href="http://www.epa.gov/npdes/pubs/cgp2012/finalpermit.pdf">http://www.epa.gov/npdes/pubs/cgp2012/finalpermit.pdf</a>. Additional information is available at: <a href="http://cfpub.epa.gov/npdes/stormwater/cgp.cfm">http://cfpub.epa.gov/npdes/stormwater/cgp.cfm</a>.</p> <p>The completed project may also be subject to the multi-sector general permit for storm water discharges associated with industrial activity - air transportation sector. Moreover, if any dewatering needs to occur for project construction, the project may also be subject to the remediation general permit if there is dewatering discharge. The FEIS should discuss these various permit requirements and the steps the Air Force will take to ensure compliance with stormwater discharge regulations.</p> <p>Since this is federal facility the project should be designed and operated</p>	Section 5.1.2.4 and Chapter 4 Soils and Water Section discusses NPDES and EISA requirements.

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***

Comment Number	Name/Agency	Date	Comment	Response
			in a manner consistent with Section 438 of the Energy Independence and Security Act, which provides: “The sponsor of any development or redevelopment project involving a federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.” 42 U.S.C. § 17094. Additional guidance is available at: <a href="http://www.epa.gov/owow/NPS/lid/section438/">http://www.epa.gov/owow/NPS/lid/section438/</a> .	
61-4	Curtis Spalding, USEPA, Region 1	3/24/14	<p>Water Supply</p> <p>The DEIS does not describe or acknowledge a drinking water supply well called the Pease Trade Port Haven Well [EPA ID#1 951020-002] operated by the Portsmouth Water Works. The proposed installation lies within the well’s source water protection area (SWPA). This gravel-packed supply well is approximately 4,200 feet south of the proposed facility. The FEIS should be updated to include this water supply resource.</p> <p>The DEIS should include the latest raw water quality analyses for the Pease Trade Port Haven Well (i.e., inorganics, VOCs, SOCs, PAHs, etc.) from the Portsmouth Water Works to describe current ground water quality under the proposed installation location. This will provide a basis for a comparison of future potential drinking water impacts, if any, from KC-46A activities. In addition, any nearby monitoring wells should be sampled for the same constituents. The DEIS’ description of ground water impacts (page 4-74) mentions only a 0.5 acre increase in impervious surface from the project. No mention whatsoever is made of ground water quality.</p> <p>The fate and transport of storm water, deicing chemicals or fire-fighting agents in the vicinity of the proposed installation are not clear in the document. The FEIS should describe the present composition of storm water runoff; and what, if any, changes in impacts will occur to surface or ground waters from the new facility construction and operation.</p>	There would be no change to management of stormwater and no changes to water quality of surface or groundwater is expected as a result of the Proposed Action. Added the following to the Pease Chapter 3 groundwater section: The primary water sources for the Pease International Tradeport are three wells operated by Portsmouth waterworks; Haven, Smith, and Harrison wells (City of Portsmouth 2010).
61-5	Curtis Spalding, USEPA, Region 1	3/24/14	<p>Pittsburgh ANGS Alternative Hazardous Materials and Waste</p> <p>The DEIS (page 3-105) notes, “Nineteen ASTs occur on the 171 AR W installation and are used to store diesel, jet fuel, motor gasoline,</p>	Nothing would change with respect to ASTs (what is stored, what amount is stored, etc.); therefore, no further

*Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS*

*Appendix B6 Public Hearing Transcripts, Responses to Comments, and*

*Written Comments on the Draft EIS*



Comment Number	Name/Agency	Date	Comment	Response
			<p>aqueous film forming foam, potassium acetate, developer, dye penetrant, emulsifier, and rinse solution.” The location of the ASTs is not shown on the site. The FEIS should provide a map that depicts the location of the ASTs in relation to the proposed facility construction. The safety measures integrated into the AST should also be discussed.</p> <p>The DEIS (page 5-27) notes, “Under Alternative #4, the total number of flying hours for the 171 ARW would increase approximately 34 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately.” The FEIS should discuss if the current hazardous waste management systems can handle and treat increased hazardous waste and if additional options have been considered for incorporation to respond to the projected increase.</p> <p>The Pittsburgh IAP relies on two in-stream treatment ponds to treat deicing wash. The ANG should consider upgrading its deicing facility to meet current standards.</p> <p>The DEIS (page 3-106) notes, “Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP.” “The installation CAP is located in Building 501/502 (171 ARW 2009, Tower 2013b).” Building 501/502 is not identified on a map in the DEIS. The FEIS should explain whether these buildings are within the study area, depict them on a map and discuss safety procedures incorporated into the building design. The FEIS should also describe the approximate increase in waste generated as a result of the Proposed Action and if the buildings would have the capacity to handle the additional waste.</p> <p>The DEIS (page 3-106) notes, “OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Fifteen OWSs are located on the 171 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance area (171 ARW 2012c).” The FEIS should provide the location of the fifteen OWSs located on the 171 ARW installation and describe whether more are</p>	<p>discussion or identification of locations of them is warranted.</p> <p>Have added the following language that is currently in Chapter 4 Hazmat sections also to Chapter 5 sections “Hazardous waste generation (e.g., used oil, used filters, oily rags, etc.) would continue to be managed in accordance with the installation’s Hazardous Waste Management Plan and all applicable federal, state, and local regulations. Additionally, no changes to the installation’s small quantity generator status would be expected to occur due to the increase in hazardous waste generation from aircraft operations.”</p> <p>Upgrading the deicing facility is not a part of the proposed action, and as such is not discussed in this EIS.</p> <p>These buildings are not located within the area of construction and therefore are not shown on the areal extent of the map.</p> <p>Should additional OWSs or</p>

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***



Comment Number	Name/Agency	Date	Comment	Response
			<p>necessary to compensate for the proposed action and/or to control waste from entering the sanitary sewer and stormwater drainage systems.</p> <p>The DEIS (pages 3-106 and 3-107) identifies three closed ERP sites and two closed Areas of Concern (AOC) at the 171 ARW installation. The DEIS did not discuss if contaminated soils were removed if groundwater is being treated and whether these areas are subject to land control restrictions. Since the Proposed Action can occur on or in proximity to existing ERP sites and AOCs, this information and how the proposed action may affect them, is critical to assessing environmental impacts and should be provided in the FEIS.</p>	<p>stormwater drainage systems be necessary, these would be incorporated into the designs; however the designs have not been finalized yet. They would be managed in accordance with each installation's hazardous waste and stormwater management plans.</p> <p>See Section 4.4.9.3, which says "This site is closed and was a POL storage area and fuel hydrant system for JP-4 fuel. Soil and groundwater sampling performed at this site did not reveal contaminants of concern above PADEP guidelines."</p>
61-6	Curtis Spalding, USEPA, Region 1	3/24/14	<p>Environmental Justice and the Protection of Children</p> <p>The DEIS (page 3-110) discusses minority and low-income populations as well as children under the age of 18 living in the vicinity of the Pittsburgh ANG. However, the FEIS should identify census tracts and blocks depicting these populations on a map to show possible impacts and support text and tables provided.</p>	<p>Comment noted. GIS for census tracts and blocks from the U.S. Census Bureau were used to analyze low-income and minority populations within the vicinity of Pittsburgh ANG. However, this was considered unnecessary for analysis to depict on maps in the EIS as the maps created would be cluttered and difficult to read.</p>
61-7	Curtis Spalding, USEPA, Region 1	3/24/14	<p>Aircraft Noise</p> <p>The DEIS (page 4-89) notes, "Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield." "This procedure is currently being flown with the KC-135; however most tactical procedures would be accomplished in the</p>	<p>There is no change to the type of operations that would occur at the Pittsburgh airfield. A maximum of 8,040 training hours (non-simulator) have been</p>

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and***

***Written Comments on the Draft EIS***

Comment Number	Name/Agency	Date	Comment	Response
			simulator and at the other locations away from Pittsburgh IAP.” The FEIS should estimate the number of tactical procedures to take place in the simulator versus other locations and identify the other locations where this training will occur and associated impacts.	evaluated. Additional operations practiced in the simulator are non-essential to the environmental analysis.
68-1	Elaine Roberts, Columbus Regional Airport Authority	1/24/14	<p>The Rickenbacker Air Guard Station is well located to provide responsive support to the significant demand for aerial refueling in the eastern United States, particularly the heavy concentration of fighter and cargo aircraft in the southeast states. Rickenbacker AGS is well positioned to accept 12 KC-46A aircraft, with the base’s infrastructure currently supporting 18 KC-135R aircraft. Rickenbacker also offers a total logistics platform, all-weather navigation, a Foreign-trade zone, and U.S. Customs and Border Protection on site. CRAA maintains all runways, taxiways and navigational aids.</p> <p>Additionally, the facility stands out for its existing infrastructure, offering not just one, but two runways meeting the criteria identified in your sourcing document.</p> <p>We know you will do a detailed analysis of our Region and compare us against other competitors to ensure the best choice for your people, your aircraft and your mission.</p>	Thank you for your comment. As described in Section 2.2 of the Draft EIS, the USAF strategic basing process used several operational and other criteria to identify candidate and alternative bases for the MOB 2 missions. The criteria included 1) runway of at least 7,000 feet in length, 2) the presence of an ANG Wing on the installation, and 3) the installation had to be located in the continental United States. The EIS process is focused on evaluating each alternative to inform the Secretary of the Air Force on potential environmental impacts associated with each base. The USAF considers public comments in making decisions. We appreciate your participation in the environmental impact analysis process.
76-1	Ruth Foster, NJ Department of Environmental Protection	3/24/14	<p>The Historic Preservation Office (HPO) received the above document for review directly from the National Guard Bureau. As stated in the EIS document, the HPO previously reviewed the proposed undertaking pursuant to Section 106 of the National Historic Preservation Act. Our office concurred with the finding that there are no historic properties affected by the proposed activity at Joint Base McGuire-Dix-Lakehurst. A copy of our review letter (HP0-12013-045) is attached for your</p>	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***

Comment Number	Name/Agency	Date	Comment	Response
			reference.  Thank you for providing us with the opportunity for review and comment on the submitted documentation. If you have any questions, please do not hesitate to contact me. If additional consultation is required for this undertaking, please reference the HPO project# 13-1101 in any future calls, emails, or written correspondence in order to expedite our review and response.	
76-2	Ruth Foster, NJ Department of Environmental Protection	3/24/14	The NJ Division of Fish & Wildlife (DFW) appreciates the opportunity to provide comment for the Environmental Impact Statements (EIS's) being prepared for the MOB 1/FTU 1 and MOB 2 aircraft beddowns. The NJ DFW feels that the proposed facility additions, new impervious surface areas and changes to the existing fueling infrastructure shown in the "Final Description of the Proposed Action and Alternatives Environmental Impact Statement KC-46A Beddown at Alternative Air National Guard Installations Main Operating Base 2" should have little to no effect on the known nesting area of the Upland Sandpipers, Grasshopper Sparrows and Savannah Sparrows near the center of the runways at McGuire AFB.	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.
76-3	Ruth Foster, NJ Department of Environmental Protection	3/24/14	In the EIS, a description of other larger aircraft with similar engines using the same runways would be helpful in determining whether or not the replacement of the existing KC-135 aerial refueling fleet with the KC-46A would have any effect on the T & E species present [JB MDL].	As stated in Appendix A, Section A.1.2.1 Actual noise measurements for the KC-46A have not been obtained. Therefore, the USAF developed a set of noise data that can be used as a substitute for the KC-46A until such time as actual noise data becomes available. This data is not available in the INM program; therefore, the B767-300 was used as a substitute aircraft at civilian airports. Based on this substitute data, on a one-to-one basis, the KC-46A is slightly quieter than both the KC-135 and B767-300.

*Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS*

*Appendix B6 Public Hearing Transcripts, Responses to Comments, and*

*Written Comments on the Draft EIS*

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				Analysis in the DEIS has found that there would be no impacts to T&E species at any of the locations.
76-4	Ruth Foster, NJ Department of Environmental Protection	3/24/14	As shown in Table ES-2. Summary of Impacts, under “JB MDL”: “Acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres.” The DFW would like to know what the noise level is now and exactly what the change in noise level would be. A study by Erin H. Strasser and Julie A. Heath, <i>Reproductive failure of a human-tolerant species, the American kestrel, is associated with stress and human disturbance</i> , suggests that “cavity nesting birds, such as kestrels, who inhabit noisy environments may compensate for decreased auditory cues by increasing vigilance behavior, such as visual scans from the nest entrance or flushing from the nest, leading to changes in energy allocation or extended periods away from the nest during incubation. This behavior appears to be followed, at a high rate, by nest abandonment.” The DFW would be concerned with how this may relate to the species nesting within the air field.	The Strasser and Heath study indicates that Kestrel nest success is lower in areas with greater human disturbance (not necessarily noise); and that disturbance (as identified in the study) was related to the proximity of roads; actual noise near the nests was not measured. Operational noise levels under Alternative #2 would be expected to increase <i>slightly</i> from baseline with the conversion to the KC-46A aircraft. As shown in Appendix A, Table A.1.2-2 provides representative SELs, indicating that the SEL for individual landings by the KC-46A would be 5 dB less than with the KC-135, while take-offs would be 1 dB greater than the KC-135. Under Alternative #2, only the number of aircraft operations would change; there would be no change in where or when individual aircraft operate. Flights would be scheduled for similar time periods as

Comment Number	Name/Agency	Date	Comment	Response
				currently flown during the morning and afternoons, with approximately 4 percent of flights occurring during environmental night (after 10 p.m. and before 7 a.m.). An additional 419 acres of land off the airport property would be exposed to DNL between 65 dB and 70 dB. However, since ambient noise levels within the vicinity are relatively high under existing conditions, the proposed action under Alternative #2 would be unlikely to substantially increase enough to preclude wildlife from utilizing the area as they currently do. A reference to the Strasser and Heath study has been incorporated.
83-1	Anthony Tur, USFWS New England Field Office	4/1/14	As stated in the draft EIS Section 3.3.5.3 (pg. 3-74), dated February 2014, there are no known occurrences of federally listed or candidate species within the vicinity of the 157 ARW installation. Consequently, I have no information to justify the need for further consultation regarding the Endangered Species Act.	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.
84-1	Joshua Shaffer for Jon Coleman, USACE	3/25/14	The U.S. Army Corps of Engineers regulates earth moving activities within streams or wetlands. This includes any placement of fill material, temporary or permanent. If you are proposing a new project that entails the placement of fill material in waters (including wetlands), or if you are proposing a modification to an existing project that entails the placement of fill material in waters, then this letter serves as your notice that your project may require a permit from this office [Pittsburgh].	The Proposed Action would not require the placement of fill material in wetlands or streams.

Comment Number	Name/Agency	Date	Comment	Response
84-2	Joshua Shaffer for Jon Coleman, USACE	3/25/14	Based on the information contained within the Draft EIS it appears that impacts to waters may be proposed. We recommend that you hire a qualified wetland consultant to evaluate the entire project area in order to determine if any streams or wetlands are present. Enclosed is a list of wetland consultants. If impacts to streams or wetlands are in fact proposed, you should again contact this office to discuss permitting requirements. Every effort should be made to avoid and minimize impacts to the aquatic resources on-site. We will continue to work with you in order to protect any aquatic resources that may be present [Pittsburgh].	The EIS has analyzed potential impacts to waters and has found that there would be no impacts under the Proposed Action. Every effort to avoid impacts to aquatic resources would be made.
85-1	Thomas Chapman, USFWS New England Field Office	3/25/14	<p>Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area [Pease]. Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.</p> <p>To obtain updated lists of federally listed or proposed threatened or endangered species and critical habitats, it is not necessary to contact this office. Instead, please visit the Endangered Species Consultation page on the New England Field Office's website:</p> <p style="text-align: center;"><i><a href="http://www.fws.gov/newengland/endangered!&lt;Jpec-consultation.htm">www.fws.gov/newengland/endangered!&lt;Jpec-consultation.htm</a></i> (accessed January 2013)</p> <p>On the website, there is also a link to procedures that may allow you to conclude if habitat for a listed species is present in the project area. If no such habitat exists, then no federally listed species are present in the project area and there is no need to contact us for further consultation. If the above conclusion cannot be reached, further consultation with this office is advised. Information describing the nature and location of the proposed activity that should be provided to us for further informal consultation can be found at the above-referenced site.</p>	Thank you for your comment. No habitat for listed species is present within the project area.
91-1	John Frink	3/6/14	Now, I know it's a policy, although I have not personally called the Air National Guard, to deny jettisoning of fuel, however, I get up in the	Thank you for your comment. The ANG only jettisons fuel

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

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			<p>morning and certain atmospheric conditions, and there's a very strong smell of kerosene.</p> <p>Now, I've heard that this is because of the warm-up process and prevailing winds. I've also heard that it's necessary to jettison fuel in order to land or take off or something. But it's distressing.</p> <p>It's perhaps better that I would ask the question rather than try to make a formal statement here, and the question would be, with the new tankers, which I'm sure are probably environmentally more friendly than the KC-135s, given that the 8 aircraft would be replaced by 12, would there be more of this jet fuel in the air over my house? I have honey bees that aren't doing well. That probably is the case almost everywhere. I have a vegetable garden, which is pretty much organic, and I think it's important to really consider the environment [Pease].</p> <p>The City of Portsmouth and State of New Hampshire have always been very supportive of the military base there, but the people in Newington are the ones that really experience the downside. I have TCE in the water that runs through my property. I don't have to drink that water, but there are environmental impacts, and I just would like to be reassured that the amount of fuel in the air vapor is not going to increase due to the increased aircraft.</p>	during an emergency situation and it is not a daily practice to jettison fuel anywhere including at the end of the runway at Pease ANG.
94-1	Jeromy Applegate, OH USFWS	4/7/14	Relative to the subject project, you have made a determination that the project will have no effect on the federally endangered Indiana bat [Rickenbacker]. Because you have made a "no effect" determination, consultation (and FWS concurrence) under section 7(a)(2) of the Endangered Species Act is not required.	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.
95-1	Lori Zimmerman, USFWS Pennsylvania Field Office	4/2/14	Except for occasional transient species, no federally listed threatened or endangered species under our jurisdiction are known to occur within the project impact area [Pittsburgh].	Thank you for your comment. The USAF appreciates your input into the environmental impact analysis process. The conclusions of the EIS are consistent with this comment.



Comment Number	Name/Agency	Date	Comment	Response
95-2	Lori Zimmerman, USFWS Pennsylvania Field Office	4/2/14	<p>However, the Pittsburgh Air National Guard Station is within the range of the northern long-eared bat (<i>Myotis septentrionalis</i>), a species that was proposed for listing as an endangered species on October 2, 2013. No critical habitat has been proposed at this time. Species proposed for listing are not afforded protection under the ESA; however, as soon as a listing becomes effective, the prohibition against jeopardizing its continued existence and “take” applies <b>regardless of an action’s stage of completion</b>. Therefore, to avoid project delays we recommend that the effect of the project on northern long eared bats, and their habitat, be considered during the project planning and design. Additional information about northern long-eared bats, including ecology, habitat descriptions, listing status updates, and possible conservation measures may be found at <a href="http://www.fws.gov/midwest/endangered/mammals/nlba/index.html">www.fws.gov/midwest/endangered/mammals/nlba/index.html</a> (click on Northern Long-eared Bat Interim Conference and Planning Guidance). We are available to discuss potential conservation measures specific to your project design.</p>	Thank you for your comment. No habitat or potential habitat for the long-eared by is located within the proposed construction area.
95-3	Lori Zimmerman, USFWS Pennsylvania Field Office	4/2/14	<p>The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented.</p> <p>The potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (e.g. breeding, foraging, migrating, etc.); and landscape features. Please review the enclosed information for general recommendations for avoiding and minimizing impacts to migratory birds within and around the project area [Pittsburgh]. Please be aware that since these are general guidelines, some of them may not be applicable to the current project design or they may have already been included in the project design.</p>	<p>Thank you for your comment. Impacts to migratory birds are expected to be minor to negligible under the Proposed Action at Pittsburgh ANG. No habitat would be permanently altered, and noise from construction would be temporary and minimal due to the existing ambient noise levels that occur at the airfield. An increase in levels of operations (e.g., sorties) may result in an increased opportunity for bird-aircraft strikes to occur, including those with migratory birds.</p> <p>Adherence to the existing,</p>

***Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations EIS***

***Appendix B6 Public Hearing Transcripts, Responses to Comments, and Written Comments on the Draft EIS***



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			<i>To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.</i>	BASH program would minimize the risk of bird/wildlife aircraft strikes.
97-1	Jonathan Kinney, New Jersey Historic Preservation Office	5/12/14	Please submit a hard copy of the building evaluation with a cover letter to our office requesting a formal concurrence with the “not eligible” determination [JB MDL]. We will respond upon receipt of that documentation. Please let me know if you have any questions.	A hard copy of the building evaluation has been sent to your office requesting formal concurrence.

United States Senate

WASHINGTON, DC 20510

March 5, 2014

Lieutenant General Stanley E. Clarke III  
Director, Air National Guard  
1000 Air Force Pentagon  
Washington, DC 20330-1000

Dear General Clark,

As the Air Force completes the environmental impact process associated with the second KC-46A main operating base, we write to reiterate our enthusiastic support for the Air Force's selection of Pease Air National Guard Base to serve as the first home for KC-46As in the Air National Guard. The strategic advantages of Pease, the performance of the 157th Air Refueling Wing (ARW), the strong public support for the base and its refueling mission, as well as the lack of environmental concerns continue to make Pease the best location in the Air National Guard for the KC-46A.

As you know, Pease is located only minutes from the most important refueling tracks for U.S.-based aircraft heading to the Middle East, Europe, and Africa and can support a range of training and operational missions. In fact, Pease is 12 minutes from the Coronet routing to Europe and the Middle East and ideally positioned to support the OPLAN 8010 mission. Proximity to these critical refueling tracks saves time and money, ensuring an outstanding value for the Air Force.

Pease also stands out because of its existing infrastructure to support the KC-46A. Pease has nearly one million gallons of bulk fuel storage and parking for up to 19 of the new aircraft. In addition to having one of the largest aircraft parking ramps in the Air National Guard, Pease has one of the longest runways in the Northeast and an absence of any environmental issues that would impede the basing and operation of the KC-46A.

In addition to these major assets at Pease, the most important asset is the men and women of the 157th ARW—whose expertise and commitment make them the best air refueling unit in the Air Force. From fiscal years 2011 to 2013, through supporting operations in Afghanistan, Libya, and Iraq, as well as Coronet missions, Pease has flown almost 13,000 operational hours, achieving the highest aircraft utilization of any Air National Guard KC-135 unit. Additionally, the 157th ARW was number one in operational support to Combatant Commanders—flying more operational hours than any other Air National Guard refueling unit, including units with significantly more aircraft.

The 157th ARW has developed a mature, high-performing active duty association that seamlessly integrates with the reserve component to form a highly functional unit capable of meeting the demands of the active component and the Air National Guard. Through working closely and effectively with its active associate, the 157th ARW has earned 11 Air Force Outstanding Unit Awards, while maintaining a retention rate near 100 percent. During fiscal year 2013, Pease's active associate averaged 105 days per person per year on temporary duty

assignment, the highest among all active duty and associate air refueling wings which averaged 92 days per person over the same period.

In short, an optimal strategic location, a top-performing air refueling unit, an absence of environmental concerns, and a supportive community and Congressional delegation combine to make clear that Pease Air National Guard Base represents the best possible location in the Air National Guard for the KC-46A.

Thank you for your service to our country. We look forward to working with you and the Air National Guard to welcome the KC-46A to Pease.

Sincerely,

  
Kelly A. Ayotte  
United States Senate

  
Jeanne Shaheen  
United States Senate

From: Jim Colbert [\[mailto: \]](#)  
Sent: Friday, March 07, 2014 11:26 AM  
To: ANGRG/NGB/A7A NEPA COMMENTS  
Cc:  
Subject: KC-46A BeddownEIS

I fully support the proposed beddown of the KC-46A refueling aircraft at the Pease ANG base in Newington NH

I do not believe this will have a negative impact on the environmental impact on the area. Pease has been here for a long time and the facilities here are second to none.

The arrival of this aircraft will surely create more jobs and bring more money to the State and help boost the economy..

The 157th air refueling wing would be the ideal unit receive this aircraft because of its past and present mission accomplishments.

Thank You,

Sincerely, James L. Colbert USAF, ret

Portsmouth, NH 03801



## United States Department of the Interior

OFFICE OF THE SECRETARY  
Office of Environmental Policy and Compliance  
15 State Street – Suite 400  
Boston, Massachusetts 02109-3572



March 24, 2014

9043.1  
ER 14/0069

Anne Rowe  
NGB/A7AM  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762

**RE: COMMENTS**

**Draft Environmental Impact Statement (DEIS)  
Modification of the Second Main Operating Base KC-46A Beddown  
Alternative Air National Guard Installations, NH, NJ, KS, PA, and OH**

Dear Ms. Rowe:

The U.S. Department of the Interior (Department) has reviewed the Draft Environmental Impact Statement (DEIS) for Modification of the Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations, NH, NJ, KS, PA, and OH. The Department has no comment on the DEIS.

Thank you for the opportunity to review and comment on this document. Please contact me at (617) 223-8565 if I can be of assistance.

Sincerely,

Andrew L. Raddant  
Regional Environmental Officer





U.S. Department  
Of Transportation

**Federal Aviation  
Administration**

Central Region  
Iowa, Kansas  
Missouri, Nebraska

901 Locust  
Kansas City, Missouri 64106-2325

March 3, 2014

Ms. Anne Rowe  
Plans and Requirements Branch  
National Guard Bureau  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Re: Draft Environmental Impact Statement for the Second Main Operating Base KC-46A Beddown at  
Alternative Air National Guard Installations  
Forbes Field, Topeka, Kansas – One of Five Alternative Locations

Dear Ms. Rowe:

We have received your letter dated February 1, 2014. We generally do not provide comments from an environmental perspective.

Airspace Considerations

If Forbes Field is the selected location, the project will require formal notice and review for airspace review under Federal Aviation Regulation (FAR) Part 77, Objects Affecting Navigable Airspace.

I recommend a 120-day notification to accommodate the review process and issue our determination letter. Proposals may be filed with FAA at <http://ocaaa.faa.gov>.

I encourage you to file a request for airspace study as quickly as possible if and when Forbes Field is selected in order to determine if there are any potential effects to the airport from the proposed project. Be sure to submit information for any roads, objects, and temporary construction equipment (e.g. cranes).

More information on this process may be found at:  
<http://www.faa.gov/airports/central/engineering/part77/>

If you have questions, please contact me at [glenn.helm@faa.gov](mailto:glenn.helm@faa.gov) or 816-329-2617.

Sincerely,

Glenn Helm, P.E.  
Environmental Specialist

cc: Jeff Deitering, ACE-611D (e-mail only)

NOTE: This letter was e-mailed to [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil) No hard copy will follow.

4-1

4-2

15 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports. The two airports are located within miles of each other and provide access to four heavy lift capable runways. The CRAA also governs the Rickenbacker Intermodal that combines rail head traffic, road traffic, and distribution and warehouse facilities into a true "In Land Port". This is unparalleled low cost joint use surge capability that would benefit a KC-46 operation.

Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

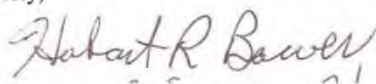
Located within 1 hour flight time to 60% of the US population, Columbus is the ideal departure point for homeland defense and security. Additionally, the Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul world- wide delivery.

Columbus, Ohio is the 15<sup>th</sup> largest city and rated the 11<sup>th</sup> most military friendly city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. In short, Columbus and the surrounding communities are ready for the KC-46.

I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,





March 14, 2014

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

■ Economic Development  
5800 Shier Rings Road  
Dublin, Ohio 43016  
phone 614.410.4618  
[www.dublinohio.gov](http://www.dublinohio.gov)

The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports. The two airports are located within miles of each other and provide access to four heavy lift capable runways. The CRAA also governs the Rickenbacker Intermodal that combines rail head traffic, road traffic, and distribution and warehouse facilities into a true "In Land Port." This is unparalleled low cost joint use surge capability that would benefit a KC-46 operation.

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

Dana McDaniel  
Development Director

DLM/tb





**MUNICIPAL BUILDING**  
655 Blacklick Street  
Groveport, OH 43125  
614-836-5301  
FAX: 614-836-1953  
[www.groveport.org](http://www.groveport.org)

March 13, 2014

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

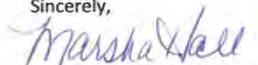
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Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force. Located within 1 hour flight time to 60% of the US population, Columbus is the ideal departure point for homeland defense and security. Additionally, the Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul world- wide delivery.

Columbus, Ohio is the 15th largest city and rated the 11th most military friendly city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. In short, Columbus and the surrounding communities are ready for the KC-46.

I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.  
Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

  
Marsha Hall, Administrator  
City of Groveport, Ohio

*Town Hall 648 Main Street, Groveport, Ohio 43125  
Recreation Center 7370 Betz Way, Groveport, Ohio 43125  
Public Works 7400 Groveport Road, Groveport, Ohio 43125  
The Links at Groveport 1005 Richardson Road, Groveport, Ohio 43125*



**JEFF HALL**  
NEWARK CITY MAYOR

City Hall  
40 West Main Street  
Newark, Ohio 43055-5531  
www.newarkohio.net

(740) 670-7510  
jhall@newarkohio.net

March 14, 2014

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

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Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

Located within 1 hour flight time to 60% of the US population, Columbus is the ideal departure point for homeland defense and security. Additionally, the Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul world-wide delivery.

Columbus, Ohio is the 15<sup>th</sup> largest city and rated the 11<sup>th</sup> most military friendly city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. In short, Columbus and the surrounding communities are ready for the KC-46.

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

Jeff Hall



CITY OF | **UPPER  
ARLINGTON**

3600 Tremont Road • Upper Arlington, Ohio 43221-1595  
Phone: 614-583-5000 • Fax: 614-457-6620 • TDD: 614-442-3216  
[www.uaoh.net](http://www.uaoh.net)

March, 17<sup>th</sup> 2014

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A “Pegasus” to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. The opportunity to engage in meaningful local partnerships around Rickenbacker Air National Guard Base offers greater capabilities than previous assessments indicate.

Rickenbacker and Columbus International Airport are located within 25 miles of each other and are both governed by the Columbus Regional Airport Authority. These two major airports are located within miles of each other and provide access to four heavy lift capable runways. The CRAA also governs the Rickenbacker Intermodal that combines rail head traffic, road traffic, and distribution and warehouse facilities into a true “In Land Port”. The KC-46 operation would benefit greatly from leveraging this unparalleled low cost joint use surge capability.

Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

Columbus is the ideal departure point for homeland defense and security operations because it is located within a 1 hour flight time to 60% of the US population. Additionally, the Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul world-wide delivery.

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— 002 —

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

A handwritten signature in black ink, appearing to read "Theodore J. Staton". The signature is stylized with a large initial 'T' and a cursive 'S'.

Theodore J. Staton  
City Manager

March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Join Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

March 2014

The Honorable Deborah Lee James  
Secretary of the Air Force  
1670 Air Force Pentagon  
Washington, DC 20330-1670

Dear Madam Secretary:

I am writing in support of bringing the KC-46A “Pegasus” to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,



15 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

*Robert C. Burelli*  
*LTC USA (Ret)*

*The decision fits the "Common Sense" Test*  
*A No Brainer!*



March 24, 2014

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

As chairman of Columbus City Council's Veterans Affairs Committee, and as a Vietnam era veteran, I know firsthand the powerful positive impact military installations can have on a community. Rickenbacker Air National Guard Base and various defense related facilities in the Columbus area employ some 13,000 people, with an estimated annual economic impact of nearly \$3 million.

That is why I am writing you in support of bringing the KC-46A "Pegasus" to Rickenbacker. In my role as a City Councilmember, I have spent time with the men and women of the 121st Air Refueling Wing and have participated in training missions with them. They are a professional, combat ready operation that plays a vital role in support of protecting American interests both at home and abroad.

As you are aware, Rickenbacker is prepared to serve as the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

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Teamed with the Defense Logistics Agency, which is located near the airport, the 121st Air Refueling Wing can be a key partner in cargo delivery for the Air Force.

Located within an hour's flight to 60% of the US population, Columbus is the ideal departure point for homeland defense and security. Additionally, the Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul worldwide delivery.



HEARCEL F. CRAIG, MEMBER OF COUNCIL

City Hall | 90 West Broad Street | Second Floor | Columbus OH 43215 | T (614) 645.7380 | F (614) 645.7399 | columbuscitycouncil.org





Columbus is America's 15th largest city and has been rated the 11th most military friendly city in the country. The city recently received an Employer Support of the Guard and Reserve award. Columbus and its surrounding communities are ready for the KC-46.

Rickenbacker Air National Guard Base is ready to be the low-cost, high-capability home for the KC-46. I urge you to bring the Pegasus to Columbus.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

A handwritten signature in black ink that reads "Hearcel F. Craig". The signature is written in a cursive, flowing style.

Hearcel F. Craig  
Member, Columbus City Council



HEARCEL F. CRAIG, MEMBER OF COUNCIL

City Hall | 90 West Broad Street | Second Floor | Columbus OH 43215 | T (614) 645.7380 | F (614) 645.7399 | columbuscitycouncil.org

18 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,



Reynoldsburg OH43068

From: ohiotaskforce [mailto: ]  
Sent: Monday, March 24, 2014 4:07 PM  
To: ANGRC/NGB/A7A NEPA COMMENTS  
Subject: support

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall

3501 Fetchet Avenue

Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely

Victor Wilson

Kristin Cruikshank

Columbus, OH 43214

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,



March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,



Col (Ret) Richard D Emmons  
Hilliard OH 43026-3009





## Fairfield County Board of Commissioners

### COMMISSIONERS

Steven A. Davis  
David L. Levacy  
Mike Kiger

### EXECUTIVE DIRECTOR

Carri L. Brown

### CLERK

Rachel A. Elsea

March 18, 2014

KC-46A EIS Project Manager, NGB/A&AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Sir:

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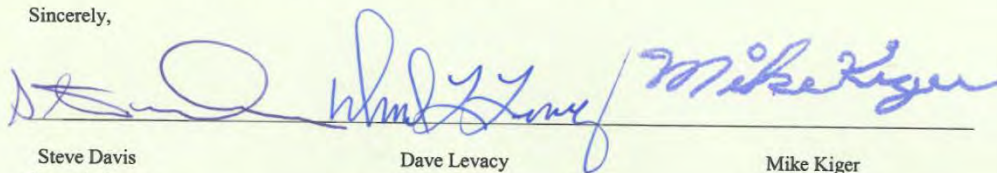
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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

  
Steve Davis                      Dave Levacy                      Mike Kiger  
Commissioner                      Commissioner                      Commissioner

Fairfield County Commissioners Office • 210 E. Main Street, Room 301  
Lancaster, Ohio 43130-3879 • (740) 652-7090 • Fax: (740) 687-6048

15 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

  
DAVID E. JACKSON  
COL AFS ROT



15 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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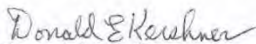
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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

  
Donald E Kershner

Columbus, Oh 43232





**Military Officers Association of America  
CENTRAL OHIO CHAPTER**

[www.moacentralohio.org](http://www.moacentralohio.org)

16 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

As President of the Military Officers Association of America (MOAA) Central Ohio Chapter, I represent approximately 400 former and retired officers of the uniformed services of the United States.

I am writing to you in support of assigning the KC-46A "Pegasus" aircraft and mission to Rickenbacker Air National Guard Base in Ohio. I am certain you are aware that Rickenbacker is prepared to accept the new role of the main operating base of the KC-46A today. However, what previous assessments may not have been able to illustrate is how much capability Rickenbacker Air National Guard Base offers through its local operating partnerships and its physical proximity to key mission-enhancing support activities.

The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports. The two airports are located within miles of each other and provide access to four heavy-lift capable runways. The CRAA also governs the Rickenbacker Intermodal that combines rail head traffic, road traffic, and distribution and warehouse facilities into a true "Inland Port". This is an unparalleled low cost joint use surge capability that would benefit the KC-46A operational mission.

Teamed with the Defense Logistics Agency, also located in Columbus and adjacent to the airport, the 121<sup>st</sup> Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

Located within a one-hour of flight time to 60% of the US population, Columbus is the ideal departure point for homeland defense and security. Additionally, the Columbus based KC-46A mission would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul world-wide delivery.

Columbus, Ohio is the 15<sup>th</sup> largest city and is rated the 11<sup>th</sup> most "military friendly" city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. In short, Columbus and the surrounding communities are an ideal location for the main operating base of the KC-46A mission and is ready to accept this important responsibility.

● Page 2

March 16, 2014

I trust you will agree that assigning the KC-46A mission to this central Ohio location would be the most low cost/high capability choice that can be made. I urge you to recommend stationing the KC-46A aircraft and mission at Rickenbacker Air National Guard Base.

On behalf of the members of the MOAA Central Ohio Chapter, thank you for your support of Rickenbacker Air National Guard Base as the future location of this important aircraft and its critical mission to the defense of the United States.

Sincerely,

A handwritten signature in blue ink, reading "Joseph A. Machado".

Joseph A. Machado  
LTC USA (Ret)  
President, MOAA Central Ohio Chapter

15 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

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Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

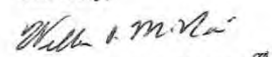
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Columbus, Ohio is the 15<sup>th</sup> largest city and rated the 11<sup>th</sup> most military friendly city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. In short, Columbus and the surrounding communities are ready for the KC-46.

I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

  
WILLIAM R. MCNEER  
COL-USA - RETIRED

BALTIMORE OHIO  
43105

March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

*Michael Myers, Lt Col, CHANG, Retired*



KC-46A EIS Project Manager, NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

March 11, 2014

Dear Sir/Madam:

I am writing in support of bringing the KC-46A “Pegasus” to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports. The two airports are located within miles of each other and provide access to four heavy lift capable runways. The CRAA also governs the Rickenbacker Intermodal that combines rail head traffic, road traffic, and distribution and warehouse facilities into a true “In Land Port”. This is unparalleled low cost joint use surge capability that would benefit a KC-46 operation.

Teamed with the Defense Logistics Agency (located in Columbus by the airport), the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

Because of its location within 1 hour flight time to 60% of the U.S. population, Columbus is the ideal departure point for homeland defense and security. Additionally, the Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul world-wide delivery.

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I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,



LtCol Rex A. Mykrantz  
Ohio Air National Guard

Hilliard, OH 43026-7332

March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

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I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

*Marlene Packer 14 March 2014*

3/15/14

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall

3501 Fetchet Avenue

Joint Base Andrews MD 20762-5157

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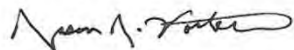
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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,



Jason J. Porter, M.D.

LtCol, Senior Flight Surgeon, Ohio Air National Guard

Rickenbacker, Columbus, Ohio

March 17, 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you know, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. However, what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

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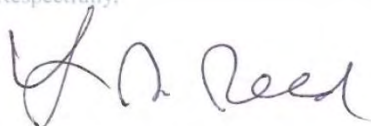
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Thank you for your support of Rickenbacker Air National Guard Base.

Respectfully,



Laurence D. Reed  
Captain, U.S. Public Health Service (Ret.)

Loveland, Ohio 45140-5501





March 14, 2014

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

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Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

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I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Regards,



Jean Carter Ryan  
President

March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

I am writing in support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

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Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

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Columbus, Ohio is the 15<sup>th</sup> largest city and rated the 11<sup>th</sup> most military friendly city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. In short, Columbus and the surrounding communities are ready for the KC-46.

I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

*Richard M. Schneider*  
COL USAF RET  
2nd Vice President, Ohio Council of Captains  
Military Officers Association of America





**Ohio Senate**  
Senate Building  
1 Capitol Square  
Columbus, Ohio 43215  
(614) 466-8082

**Joseph W. Uecker**  
State Senator  
14th District

March 18, 2014

Dear Secretary,

I am writing to express my full support of bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base in Columbus, Ohio. I believe that Rickenbacker is not only prepared to take on this new role, but that the partnerships which Rickenbacker possesses with local agencies exhibit their ability to adequately perform as the main operating base of the KC-46.

As you may know, Columbus is not only the 15<sup>th</sup> largest city, but it was also rated the 11<sup>th</sup> most military friendly city in America. Teamed with the Defense Logistics Agency and the 121 Air Refueling Wing in Columbus, Rickenbacker would be a key partner in cargo delivery for the Air Force.

Additionally, The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports. Located within two miles of each other, these two airports provide access to four heavy lift capable runways.

The CRAA also governs the Rickenbacker Intermodal which combines rail head traffic, road traffic and distribution and warehouse facilities into a true "In Land Port". This joint use allows for low cost and high capability which I believe would be beneficial to a KC-46 operation.

As Columbus is located within 1 hour flight time to 60% of the population in the United States it is the ideal departure point for homeland defense and security. The Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific allowing for long haul world-wide delivery. With the characteristics mentioned, I hope you will see that Rickenbacker Air National Guard base is a low cost and high capability choice for the station of the KC -46.

I thank you for your time and consideration. Please feel free to contact my office if you have any questions.

Sincerely,

A handwritten signature in blue ink that reads "Joseph W. Uecker".

Joe Uecker  
District 14

**Contact Info**  
Phone: 614.466.8082  
Email: uecker@ohiosenate.gov

**Committees**  
State Government and Oversight Reform – Vice Chair • JCARR  
Finance: Subcommittee on Education • Energy and Natural Resources  
Civil Justice • Commerce and Labor • Public Safety • Public Utilities

15 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir:

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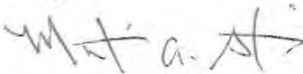
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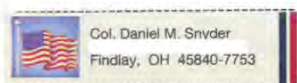
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I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

  
Martin A Stires  
Lt. Col. USAF (Ret.)



KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,

*Daniel M. Snyder COL (ret) OAWG*



14 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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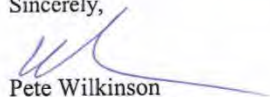
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Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,



Pete Wilkinson  
Colonel USAF (Retired)  
MOAA Central Ohio Past President

From: petewilkinson [mailto: [\]  
Sent: Sunday, March 16, 2014 4:21 PM  
To: ANGRC/NGB/A7A NEPA COMMENTS  
Cc: petewilkinson  
Subject: KC-46A Assignment to Rickenback Air National Guard Base](#)

KC-46A EIS Project Manager

NGB/A7AM, Sheppard Hall

3501 Fetchet Avenue

Joint Base Andrews MD 20762-5157

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Sincerely,

Pete Wilkinson

Colonel USAF (Retired)

MOAA Central Ohio Past President

Pete Wilkinson

15 March 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

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I am writing in support of bringing the KC-46A “Pegasus” to Rickenbacker Air National Guard Base. As you are aware, Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today. But what the previous assessments have not been able to show is how much capability Rickenbacker Air National Guard Base offers with their local partnerships.

The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports. The two airports are located within miles of each other and provide access to four heavy lift capable runways. The CRAA also governs the Rickenbacker Intermodal that combines rail head traffic, road traffic, and distribution and warehouse facilities into a true “In Land Port”. This is unparalleled low cost joint use surge capability that would benefit a KC-46 operation.

Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

Located within 1 hour flight time to 60% of the US population, Columbus is the ideal departure point for homeland defense and security. Additionally, the Columbus based KC-46 would be sharing the runways with Fed Ex, UPS, Cargo Lux and Cathay Pacific for long haul world- wide delivery.

Columbus, Ohio is the 15<sup>th</sup> largest city and rated the 11<sup>th</sup> most military friendly city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. In short, Columbus and the surrounding communities are ready for the KC-46.

I think you can see that bringing the KC-46 to Rickenbacker would be the most low cost/high capability choice that can be made. I implore you to station the KC-46 at Rickenbacker Air National Guard Base.

Thank you for your support of Rickenbacker Air National Guard Base.

Sincerely,





## CITY OF TOPEKA

Larry E. Wolgast, Mayor  
City of Topeka  
215 SE 7<sup>th</sup> Street  
Topeka, KS 66603  
(785) 368-3895  
(785) 368-3850 fax

March 12, 2014

The Honorable Deborah James  
Secretary of the Air Force  
1670 Air Force Pentagon  
Washington, DC 20330

General Mark A. Welsh  
Chief of Staff- United State Air Force  
1670 Air Force Pentagon  
Washington, DC 20330

Dear Secretary James and General Welsh:

I am writing in support of bringing the first Air National Guard KC-46A Main Operating Base with the 190<sup>th</sup> Air Refueling Wing to the Forbes Field Air National Guard Base in Topeka, KS. The City of Topeka has been honored to be the home of the 190<sup>th</sup> Air Refueling Wing and our community has demonstrated that it is well suited to support the men and women who will be serving the new KC-46A.

Topeka is home to multi-generational military families whose parents or grandparents came to Forbes Air Force Base as part of the Strategic Air Command---men and women who stayed to start a family, buy a home, join the workforce. These men and women brought talent, energy, and leadership skills which melded well with our goals and Topeka has prospered because of their contributions. We are a better city because of their presence and our community remembers. The ties that bind us together are strong and the lines between civilian and military are indistinguishable. This indelible characteristic can't be measured but we know it is the heart and soul of who we are.

The Greater Topeka Chamber of Commerce has done an outstanding job providing you with the myriad of facts for this request. I proudly endorse their comments on behalf of the City of Topeka. I am especially honored to extol the attributes of this community and its people.

We are excited about the opportunities we have to offer and I personally encourage you to consider Forbes Field Air National Guard Base as the new home for the Air National Guard KC-46A Main Operating Base. We are ready to provide support in any way possible.

Thank you for your consideration. We look forward to working with you.

Sincerely,

Larry E. Wolgast



MARGARET WOOD HASSAN  
Governor

STATE OF NEW HAMPSHIRE  
OFFICE OF THE GOVERNOR

March 6, 2014

KC-46A EIS Project Manager  
NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Friends:

I regret that I am not able to be with you in person for today's public hearing, but on behalf of the State of New Hampshire, I write to express my strong support for the beddown of the new KC-46A aircraft at Pease Air National Guard Base in Newington, New Hampshire.

The Pease Air National Guard Base is the ideal location for the KC-46A air refueling tankers. The base is strategically located on the East Coast of the United States, translating to considerable time and cost savings for all eastbound support operations. In addition, much of the infrastructure needed to successfully implement the KC-46A aircraft is already in place at Pease. This infrastructure includes the longest Air National Guard runway and parking ramp in the northeast, air traffic control, security and customs, and fire protection.

The 157<sup>th</sup> Air Refueling Wing and the 64<sup>th</sup> Air Refueling Squadron stationed at Pease are the best options to support the operation of the new KC-46A aircraft. The 157<sup>th</sup> Air Refueling Wing is a model unit, made up of brave, skilled airmen who consistently exceed expectations in the participation of both military and homeland defense operations. Since their assignment to the 157<sup>th</sup> Air Refueling Wing in 2009, the 64<sup>th</sup> Air Refueling Squadron has fully integrated into the wing, and their performance has rated as outstanding.

Bringing the KC-46A air refueling tankers to Pease will also benefit our Seacoast communities and economy, bringing more jobs to the region and helping the base generate an even greater positive economic impact.

36-1

107 North Main Street, State House - Rm 208, Concord, New Hampshire 03301  
Telephone (603) 271-2121 • FAX (603) 271-7640  
Website: <http://www.nh.gov/> • Email: [governorhassan@nh.gov](mailto:governorhassan@nh.gov)  
TDD Access: Relay NH 1-800-735-2964

Letter for KC-46A Public Hearing  
March 6, 2014  
Page 2

Our state has a proud tradition of military service dating back to the founding of the New Hampshire National Guard nearly 400 years ago. Today, the men and women of our Air National Guard continue this tradition of military service. Our New Hampshire airmen and soldiers are true heroes who have proven their dedication and courage time and again.

The assignment of the KC-46A tankers to Pease will be good for the Air National Guard, the State of New Hampshire and our economy. It is an honor to be selected by the Air Force to base the KC-46A refueling tankers at Pease.

With every good wish,

A handwritten signature in blue ink, reading "Margie H", with a long horizontal flourish extending to the right.

Margaret Wood Hassan  
Governor

107 North Main Street, State House - Rm 208, Concord, New Hampshire 03301  
Telephone (603) 271-2121 • FAX (603) 271-7640  
Website: <http://www.nh.gov/> • Email: [governorhassan@nh.gov](mailto:governorhassan@nh.gov)  
TDD Access: Relay NH 1-800-735-2964



From: [mailto: ]  
Sent: Friday, March 07, 2014 12:59 PM  
To: ANGRC/NGB/A7A NEPA COMMENTS  
Subject: KC-46A Beddown EIS"

I am the surviving spouse of a 28 year veteran of the USAF. Our last duty station was Pease AFB, 509th Bomb Wing, Strategic Air Command. He felt that Pease was one of the best laid out, and functionally prepared air bases, for any aircraft that ever needed to land here, regardless of size and speed. Aircraft are always in the process for change. I remember at Wright Patterson AF base when the huge B29 came there for a home base after the war. Many thought it too large, but perhaps it is still there and useful. Another base was in the Azores when the KC 135 came for a visit. It was huge, therefore, comments about the ability of the field to operate were bandied about, but it served it's purpose.

Now Pease is the ideal place to handle the KC-46A because of the excellent runways and service crews that can handle anything at the 157th Air Refueling Wing, of the Air National Guard and Air Force 64th Refueling Squadron. We embrace the idea of hosting the KC-46A here at Pease, as well as the population here in Portsmouth, NH.; that is a ready made Military town along with the Navy Base across the river. WELCOME

Thank you,  
Barbara N Hayes,  
(spouse of deceased, Maj. Herman H Hayes)

From: Nancy Holloway [<mailto:>]  
Sent: Monday, March 10, 2014 6:11 PM  
To: ANGRG/NGB/A7A NEPA COMMENTS  
Cc: Nancy Holloway  
Subject: KC-46A Beddown EIS

I missed the community meeting at Rickenbacker, so I'm sending a quick message in support of assigning the new squadron of KC-46A refueling tankers to Rickenbacker ANGB. I live in the area and briefly reviewed the EIS at the library. I am in complete support of bringing the new aircraft here and all the modifications necessary to accomplish it. The base and all activities that occur there enrich our community. Thank you.

--

Nancy A. Holloway

Canal Winchester, OH 43110

From: Kidd, Emmanuel CW3 USARMY NG OHARNG (US)  
[mailto: ]  
Sent: Wednesday, March 12, 2014 11:49 AM  
To: ANGRC/NGB/A7A NEPA COMMENTS  
Subject: KC-46A to Ohio (UNCLASSIFIED)

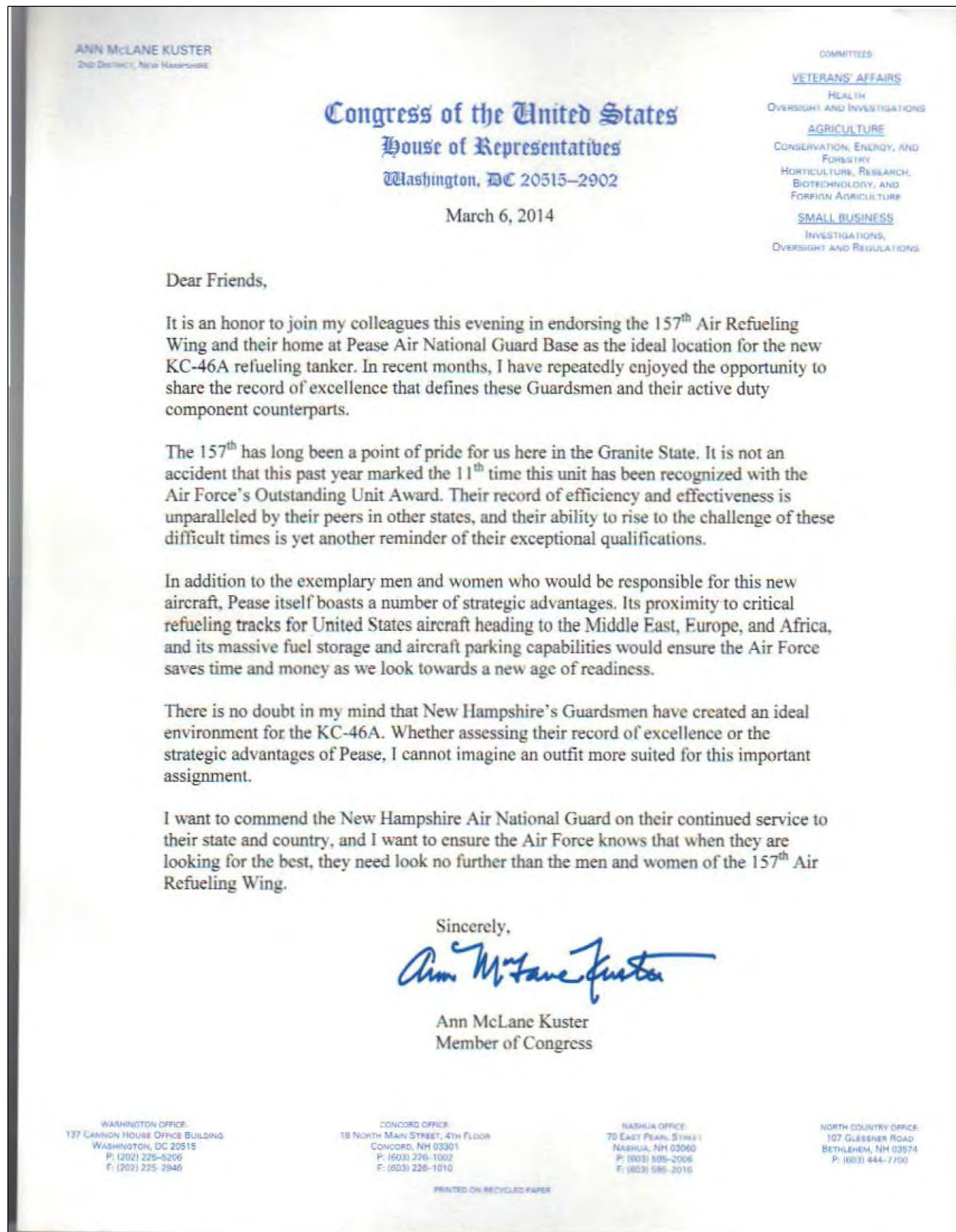
Classification: UNCLASSIFIED  
Caveats: NONE

Bring the KC-46A to Ohio, Rickenbacker is ready. I've worked around Rickenbacker, as part of the Co. D 1/137th AVIM for 14 years. The experience level at 121 ARW is second to none. The surrounding communities and Ohio are ready for this new challenge. Ohio is the leap forward in efficiency and capability the KC-46 needs for the success of the nation.

Regards,  
Emmanuel Kidd  
CW3, OD  
Training Admin/WOCS Course Manager

"STRENGTH IN KNOWLEDGE"





From: Ron Manuel [mailto:[mailto:](#)]  
Sent: Sunday, March 23, 2014 3:55 PM  
To: ANGRC/NGB/A7A NEPA COMMENTS  
Cc: RETIREES160ARG; Ron Manuel  
Subject: Subject: KC-46A Beddown EIS

Ronald Douglas Manuel

Columbus, Ohio 43207  
SMS USAF Retired  
email: >

NGB Environmental Group On Bed-down of KC-46A MOB 2 Rickenbacker ANG as #1 operating base.

\*

The NAAQS and are below the pollutant emissions for the PSD/de minimus and are not subject to this regulation.

\*

Rickenbacker ANG 121 ARW is already flying the required hours/sorties required by the new KC-46A aircraft.

\*

The maintenance capability is already in place (now supporting 18 KC-135R's and their training commitments) with a full maintenance capability rate.

\*

There are two runways that fully operational and they are both over 2 miles long.

\*

The civilian version of the aircraft is already flown by some of our ANG pilots, this would reduce the training needed for the new refueling aircraft (economies).

\*

The total airfield operations rate would remain at about the same level.

\*

Rickenbacker has fast delivery of parts when needed with commercial carriers (FedEx and UPS, and others) with around the clock delivery and the DSCC and DFAS installation are just up the road from the base.

\*

Our communities around the airfield are used to the activity of the ANG aircraft. Some of the people in the towns don't even now there is a tanker unit at Rickenbacker.

\*

As a community we need these new aircraft to continue the extraordinary conviction and integrity of the "troops" of the Ohio ANG to fly in support of any conflict in the world or of these United States.

\*

The community would not know of the unit's activity during the week if not for the reporting of the local news outlets. The city of Columbus Chamber of Commerce (who have at least 1600 local business support) fully stand behind the unit acquiring the new KC-46A.

\*

41-1

The Ohio ANG is the most efficient and cost effective way of using these aircraft to their full capabilities in support of US Air Force missions.

\*

The towns around RANGS have a large population of people with the technical expertise which will provide a large base of support for new members for the full-time force and the added personnel for the KC-46A.

\*

Our unit and its members have received many awards from the local communities and from communities around the world at deployed locations for their support in many missions.

\*

And the communities could use the the new jobs for the new aircraft to help support the local economy.

\*

I want to thank you for the time and effort the NGB and the Air Force members have put in to this project. I would hope Rickenbacker would be considered as the number one selection for this important step forward to modernize our tanker fleet as the 121 ARW has all the criteria areas covered.

Sincerely yours,

Ronald D. Manuel, SMS retired USAF  
Local resident of Columbus, Ohio  
Copies of local newspaper articles are attached

41-1  
Cont.

First page Back Continue Last page

#### The military



Staff Sgt. Greg Kuetemeyer climbs out of one of the engines of a KC-135R that is undergoing maintenance in a hangar at Rickenbacker Air National Guard Base.

## Rickenbacker makes its case

By Holly Zachariah  
THE COLUMBUS DISPATCH

**T**he soldiers barely had time to shower before meeting the visitors who mattered.

The men and women of the Ohio National Guard's 52nd Civil Support Team had just returned from a week spent helping resolve the West Virginia

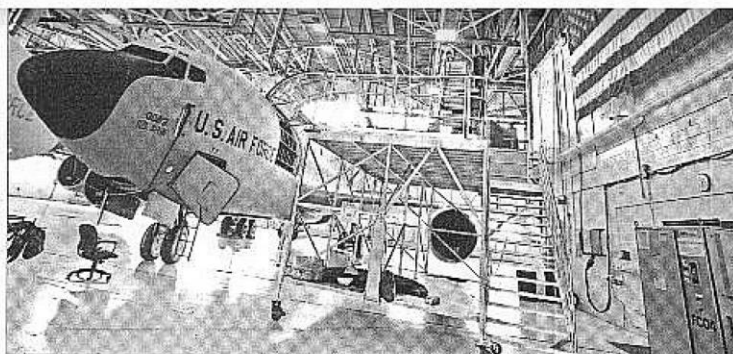
water crisis and had rolled in only that morning. Water droplets still glistened on the blue paint of their communications SUV and the rolling laboratory truck they had just cleaned and shined for their special guests.

After all, if the goal is to show the federal government what really goes on at

See Rickenbacker Page B4



First page Back Continue Last page



Rickenbacker is still home to 12 KC-135R refueling jets, although six other planes have been moved to other bases and the base was passed over for getting the first round of replacement aircraft.

### Rickenbacker

FROM PAGE R1

Rickenbacker Air National Guard Base and why it's important to retain its responsibilities, what better way than to let the senator and a host of legislative aides talk to the front-on-the-ground soldiers who went fresh from on-the-ground?

"I don't think most people really have any idea, have any clue, of all the missions that are completed around the world because of the forces that are based right here in Columbus," said Lt. Col. Jeffrey Saver, the commander of the 52nd.

Base leadership is trying to change that, and they're starting with the feds.

Executives from the Columbus Chamber and military commanders recently hosted local business leaders and officials, Sen. Rob Portman and representatives of others in Ohio's congressional delegation to show off what Rickenbacker already has and to bolster its case for what it wants to gain.

"What can we do beginning today to enhance the military value of this base?" Mark Wayda, the vice chief of the joint staff for the Ohio National Guard, asked the assembled group during a daylong event last month. "We must advocate for and defend our operations. We have to tell our story."

Few dispute that the nation's military is shrinking, and the Guard and Reserves have felt particularly under attack. Rickenbacker — a base whose backbone is the 121st Air Refueling Wing, which keeps this country's military flying — already lost six of its KC-135R refueling



Lt. Col. Jeff Saver's Army National Guard unit recently helped with the water crisis in West Virginia.

aircraft. Five went to a base in Meridian, Miss., last year, and pilots from Rickenbacker flew the sixth to its final resting place at what's not always affectionately called the military's aviation "honeyland" in Tucson, Ariz. With them went 181 military positions, including 50 full timers.

There was good news last week, however, when the National Commission on the Structure of the Air Force released its report and clearly called for increasing Air Force Guard and Reserve slots and upping the opportunities for the Guard to work side-by-side with active-duty personnel.

Still, just a few weeks ago, the federal government said it wants to take the Apache helicopters out of the hands of the nation's military reserve and move them to active-duty bases. The move is part of an overall plan to readjust the Army's air power because of budget constraints. The potential loss of Apaches doesn't affect Army Guard operations at Rickenbacker, but it hits the troops.

The Apache is an attack helicopter, and the Black Hawk,

### On the Web

► See photos of Rickenbacker military operations at [Dispatch.com/photos](http://Dispatch.com/photos).

of which Rickenbacker currently has 18, is a workhorse. Base leaders fear that if the Apaches are reallocated, Washington might then try to shuffle the Black Hawks, too.

It also presents an image problem, Brig. Gen. Dana McDaniel, who leads the Ohio National Guard's 73rd Troop Command, headquartered at Rickenbacker, said taking away some of the Guard's attack capability doesn't sit well with anyone.

"It sends a message to the Army Guard that we're not the strategic force we thought we were," McDaniel said.

Anticipated moves such as that are just one of the many reasons the base leadership is trying to improve their value, Wayda said.

Rickenbacker, whose newest KC-135 is a 1964 model, was passed over for the first allotment of next-generation refueling planes. It was announced last year that Pease Air National Guard Base in New Hampshire is expected to take delivery of 12 new KC-46As in federal fiscal year 2016.

Portman told the assembled leaders that Columbus still has a shot at a later round. An environmental assessment to help prove the base can handle the new fleet is underway. He said that when it comes to Ohio's military power, he is "making a full-court press to keep what we have and even expand it."

He added, however, that base commanders and local leaders

must work harder at telling their story.

Michael Hatley, the Chamber's vice president of government relations, said the Columbus region has more than 13,000 military/defense jobs with about \$2.2 billion in assets.

"If that was a private business, we'd be walking over hot coals to keep it intact," he said before the daylong tour of base facilities began. "If we can understand it, we can defend it."

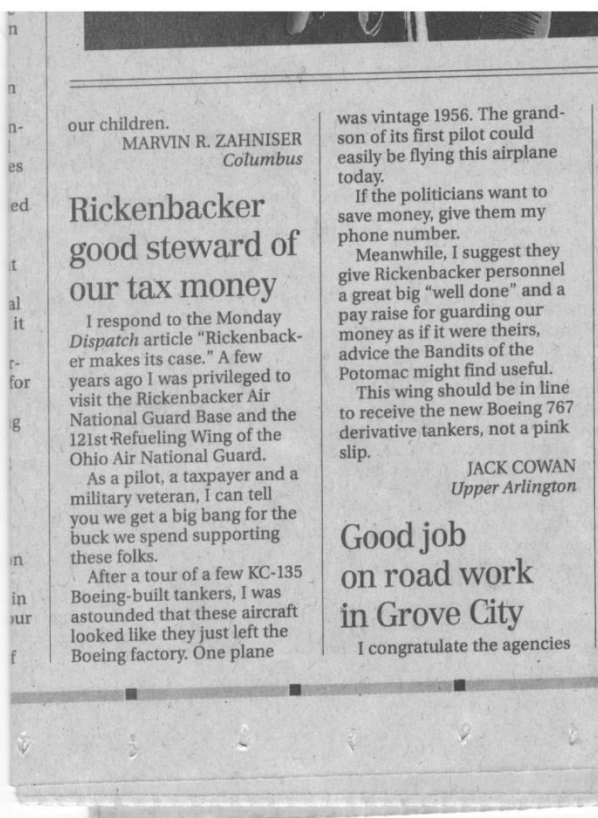
In addition to Portman, those attending the meeting at the base included representatives of the offices of House Speaker John Boehner and Sen. Sherrod Brown. And this month, Hatley and a contingent from the Chamber will head to Washington to meet with congressional leaders on military committees to continue to sell Rickenbacker's story.

Hatley said that when many people think of Rickenbacker, they think only of the 121st Refueling Wing of the Air National Guard that operates there. But it is so much more, he said.

It's home to, among others, Company B 2nd Battalion 15th Special Forces Group (airborne), Ohio's only Green Berets. There is a Navy Operational Support Center on base, a Homeland Security force and Marines, too. One building even houses the 122nd Army Band.

"We have to be able to show our policymakers, the Washington decision makers, that our mission here is critical," Hatley said. "We can't be reactive. We have to be diligent and alert to protect what is ours."

[hmcneil@dispatch.com](mailto:hmcneil@dispatch.com)  
@hollyzachariah





KC-46A EIS Project Manager  
NGB/A7 AM  
Sheppard Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157  
[ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil)

March 17, 2014

The Honorable Deborah Lee James  
Secretary of the Air Force

Subject: "KC-46A Beddown EIS"

Today I'm writing on behalf of the City of Canal Winchester in support of the Rickenbacker AFB Columbus, Ohio Beddown of the KC-46A Aircraft. Rickenbacker has been a large part of our community for more than sixty years and has always been an important and responsible member of our community. The Ohio Air National Guard's 121<sup>st</sup> ARW home at Rickenbacker AFB has a history of outstanding service and performance for many Central Ohio communities and our Nation's refueling missions abroad and at home.

The infrastructure and environment at Rickenbacker is the best there is and its location has made it easily accessible to any part of the United States and our U.S. Capitol within minutes. Additionally refueling missions are accomplished easily from Rickenbacker to the Southeastern part of the United States for its large inventory of Fighter and Cargo aircraft.

Local Central Ohio Communities are strong supporters of The 121<sup>st</sup> ARW, Rickenbacker AFB and its residents, as is Rickenbacker and the 121<sup>st</sup> ARW to our communities. The schools are second to none and will support the additional students the KC-46A Beddown will bring to the area. Our cost of living is low compared to most regions and our amenities make the area quite attractive and appropriate for and active unit.

The City of Canal Winchester and its residents encourage you to continue to support Rickenbacker AFB and the 121<sup>st</sup> ARW with the KC-46A Beddown EIS so it may continue its superior service to our Nation, the service it deserves.

Respectfully,

Michael Ebert

Mayor

[mebert@canalwinchesterohio.gov](mailto:mebert@canalwinchesterohio.gov)

---

CITY OF CANAL WINCHESTER  
36 South High Street, Canal Winchester, OH 43110 p: (614) 837-7493 f: (614) 837-0145 [www.canalwinchesterohio.gov](http://www.canalwinchesterohio.gov)

THE  
NEW ENGLAND  
COUNCIL

March 14, 2014

KC-46A EIS Project Manager  
NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

**RE: KC-46A Beddown EIS**

To Whom It May Concern:

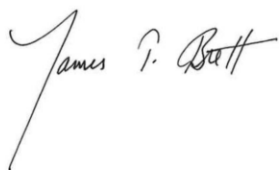
I write today on behalf of The New England Council, the nation's oldest regional business association. The New England Council is an alliance of businesses, academic and health institutions, and public and private organizations throughout New England formed to promote economic growth and a high quality of life in the region. The Council is dedicated to identifying and supporting federal public policies and articulating the voice of its membership regionally and nationally on important issues facing New England.

The Council has a long history as an advocate for our region's military installations and believes firmly that these bases are critical not only to our nation's security, but also to our region's economic wellbeing. As such, we strongly support the selection of Pease Air National Guard Base in Portsmouth, New Hampshire, as the base for the Air Force's new KC-46A mid-air refueling tankers.

Not only is the base well positioned and prepared to welcome these new aircraft, but the selection of Pease would have tremendous economic and other benefits for our region. First, the selection of Pease would bring much-needed new jobs to our region, including 70 full-time and 50 part-time jobs, addition an additional \$7 million to the local payroll. In addition, if Pease is selected, our region's economy and local communities will benefit from \$45 million in military construction. Of course the selection of Pease would also bring a variety of other benefits to our region, including enhanced FEMA region 1 response and increased cargo and aeromedical evacuation capacity.

The New England Council is proud to add our voice to those of Governor Maggie Hassan and the entire New Hampshire Congressional delegation in supporting the selection of Pease Air National Guard Base as the home of the KC-46A. If you have any questions, I can be reached at (617) 723-4009.

Sincerely,



James T. Brett  
President & CEO

The New England Council  
98 North Washington Street • Boston, Massachusetts 02114 • (617) 723-4009  
331 Constitution Avenue, NE • Washington, DC 20002 • (202) 547-9149  
www.newenglandcouncil.com





In reply refer to  
2013-FRA-24671

March 10, 2014

Anne Rowe  
Plans and Requirements Branch  
NGB/A7AM  
3501 Fetchet Avenue  
Joint Base Andrews, Maryland 20762-5157

Dear Ms. Rowe:

Re: MOB 2 KC-46A Beddown Draft EIS  
Rickenbacker ANG, Hamilton and Madison Townships, Franklin County, Ohio

This is in response to correspondence dated February 1, 2014, (received on February 10, 2014) conveying a Draft Environmental Impact Statement prepared by the National Guard Bureau (NGB) to analyze potential impacts of the proposed MOB 2 KC-46A beddown. Rickenbacker Air National Guard Station (ANGS) in Hamilton and Madison Townships, Franklin County, Ohio is one of five alternative locations being considered for this facility.

As stated in our July 2, 2013, letter responding to the NGB's initial correspondence regarding this matter, we reiterate that the Ohio Historic Preservation Office (OHPO) has no involvement in project review under the National Environmental Policy Act, for which the NGB is preparing an Environmental Impact Statement. Rather, we are responsible for advising the agency in its efforts to assess the effects of the project on historic properties under 36 CFR Part 800, the regulations implementing Section 106 of the National Historic Preservation Act (16 USC 470).

Appendix B of the Draft EIS contains a September 12, 2013, letter and associated Attachments 1, 2, and 4 from Robert Dogan of the NGB to Lisa Adkins of OHPO initiating Section 106 consultation for this project and concluding that "a potential adverse effect to Hangar 885 (at Rickenbacker ANG) may result from this undertaking." A check of the database that we use to track Section 106-related correspondence suggests that OHPO did not receive Mr. Dogan's September 12, 2013, letter.

Please re-submit this correspondence and the associated attachments – including Attachment 3 (Draft Description of the Proposed Action and Alternatives), which was not included in Appendix B of the Draft EIS – so that we can begin consultation intended to avoid, minimize, or mitigate the adverse effect on historic properties that will apparently result from project implementation.

44-1

**OHIO HISTORICAL SOCIETY**

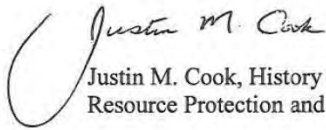
*Ohio Historic Preservation Office*

800 East 17th Avenue, Columbus, Ohio 43211 ph: 614.298.2000 fx: 614.298.2037  
www.ohiohistory.org

Anne Rowe  
March 10, 2014  
Page 2

If you have any questions, please contact me by phone at (614) 298-2000 or by email at [jcook@ohiohistory.org](mailto:jcook@ohiohistory.org). Thank you for your cooperation.

Sincerely,



Justin M. Cook, History Reviews Manager  
Resource Protection and Review

cc: KC-46A Project Manager, NGB/A7AM, Shepperd Hall, 3501 Fetchet Avenue,  
Joint Base Andrews, Maryland 20762-5157  
Robert L. Dogan, REM, GS-13, Plans and Requirements Branch, NGB/A7AM,  
3501 Fetchet Avenue, Joint Base Andrews, Maryland 20762-5157

OHPO Project ID: 2013-FRA-24671

From: ohiotaskforce [[mailto:](#)] ]  
Sent: Sunday, March 09, 2014 9:18 PM  
Subject: Ohio is fighting for the KC-46

Please consider all of what central Ohio offers before you make a decision.  
The full scope of capability at low cost has not been evaluated by this round  
of assessments. Rickenbacker Air National Base is the right place to bring  
the KC-46- first.

Thank-you  
Victor Wilson

From: Safley, Robin [<mailto:rsafley@pa.gov>]  
Sent: Monday, March 10, 2014 10:01 AM  
To: ANGRC/NGB/A7A NEPA COMMENTS  
Subject: Draft EIS for Second Main Operating Base KC-46A Beddown at  
Alternative Air National Guard Installations

Attached you will find our letter of comment concerning the above referenced project.

Ann Safley | Historic Preservation Specialist

Bureau for Historic Preservation, State Historic Preservation Office  
Pennsylvania Historical and Museum Commission  
400 North Street, 2nd Floor | Harrisburg, PA 17120-0093  
Phone: 717.787.9121



Commonwealth of Pennsylvania  
Pennsylvania Historical and Museum Commission  
**Bureau for Historic Preservation**  
Commonwealth Keystone Building, 2<sup>nd</sup> Floor  
400 North Street  
Harrisburg, PA 17120-0093  
[www.phmc.state.pa.us](http://www.phmc.state.pa.us)

Anne Rowe  
National Guard Bureau  
A7AM Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

RE: ER# 09-2162-003-B  
DOD: Draft EIS for Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations, Pittsburgh, Air National Guard, Finley Twp., Allegheny Co.

Dear Ms. Rowe:

The Bureau for Historic Preservation (the State Historic Preservation Office) reviews projects in accordance with Section 106 of the National Historic Preservation Act of 1966, as amended in 1980 and 1992, and the regulations (36 CFR Part 800) of the Advisory Council on Historic Preservation as revised in 1999 and 2004, and under the authority of the Environmental Rights amendment, Article 1, Section 27 of the Pennsylvania Constitution and the Pennsylvania History Code, 37 Pa. Cons. Stat. Section 500 et seq. (1988). These requirements include consideration of project potential effects upon both historic and archaeological resources.

Based on our survey files, which include both archaeological sites and standing structures, and the information you provided, it is our opinion that this project has no potential to affect historic properties. Therefore, your responsibility for consultation with the State Historic Preservation Office for this project is complete. Should you become aware, from any source, that historic or archaeological properties are located at or near the project site, please notify the Bureau for Historic Preservation at (717) 783-8946.

46-1

If you need further information in this matter please consult Ann Safley at (717) 787-9121.

Sincerely,

A handwritten signature in dark ink, appearing to read "Doug McLearen".

Douglas C. McLearen, Chief  
Division of Archaeology & Protection

DCMcL/ras





**Penobscot Nation**  
**Cultural and Historic Preservation Department**  
**12 Wabanaki Way, Indian Island, ME 04468**

February 28, 2014

KC-46A EIS Project Manager  
NGB/A7AM  
Sheppard Hall  
3501 Fetcher Avenue  
Joint Base Andrews MD 20762-5157

RE: Draft Environmental Impact Statement for the Second Main Operating Base KC-46A  
Beddown at Alternative Air National Guard Installations

Dear Sir/Madam,

The Penobscot Nation Tribal Historic Preservation Office has reviewed the Draft Environmental Impact Statement for the Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations. The Penobscot Nation recognizes that the Preferred Alternative for the MOB 2 KC-46A Beddown will be located at Pease ANGS, New Hampshire.

It is understood that the Proposed Action may result in an increase in the frequency of use and number of operations conducted within the airspace currently used by the KC-135. The Proposed Action states that no new airspace will be required for the KC-46A and the flight operations will be similar to the existing KC-135 aircrafts. The Penobscot Nation would like notification if there is to be a significant change in the flight patterns and a significant change in the airspace that will be utilized during these missions.

47-1

The Penobscot Nation concurs with the Cultural Resources study that there would be no adverse effect upon any Penobscot cultural and/or historical interests within the Project Boundary of this Proposed Action. The Penobscot Nation also concurs that all other potential environmental impacts associated with this Proposed Action will be minimal.

47-2

Thank you for consulting with the Penobscot Nation on the Proposed Action by the United States Air Force.

Sincerely,

Chris Sockalexis, THPO  
Penobscot Nation

From: ] On Behalf Of Joseph  
Pescatello  
Sent: Monday, March 10, 2014 7:47 AM  
To: ANGRC/NGB/A7A NEPA COMMENTS  
Subject: New KC-46A at Pease ANG Base

To Whom It May Concern:

I'm writing to express my concern over locating more refueling tankers at Pease ANG base in New Hampshire. Pease is nestled squarely in a highly residential area and residents for miles around already suffer the effects of regular jet traffic from the existing KC-135s stationed there.

Our homes, schools, parks, churches, etc. already have to live with unhealthy noise at all hours, seven-days-a-week. The smell of jet fuel is overwhelming at times in neighborhoods around the base. There is also a wildlife sanctuary located, literally, at the end of the runway at Pease. I'm very afraid that adding more tankers will have a terrible effect on the environment for both the people and animals who live here.

This area is a quiet enclave in a pristine area on the New England seacoast. As a longterm resident, I urge you to please consider other locations for the new tankers and leave the New Hampshire seacoast as it is.

Sincerely,  
Joseph Pescatello

48-1

GREATER  
**PORTSMOUTH**  
CHAMBER OF COMMERCE

March 06, 2014

KC-46A EIS Project Manager  
NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

**RE: KC-46A – Pease International Tradeport**

To Whom It May Concern:

I write today on behalf of The Greater Portsmouth Chamber of Commerce (GPCC). It is the mission of the GPCC to be the advocate for its members on issues and community concerns affecting business. Our fundamental objectives are as follows:

- Provide leadership in economic development in the Portsmouth area and in the seacoast.
- Effectively influence decisions about legislative and regional issues of interest to members.
- Identify and serve interest and needs of members, while expanding membership.
- Encourage community development in education, safety, transportation, environment, health, culture and recreation.
- Ensure the future of the organization and its mission through financial stability and growth and development of future Chamber leadership.

The GPCC has a long history as an advocate for the Pease Air National Guard Base (Pease) and believes firmly that this base is critical not only to our nation's security, but also to our region's economic well being. As such, we strongly support the selection of Pease in Portsmouth, New Hampshire, as the base for the Air Force's new KC-46A mid-air refueling tankers. Not only is Pease well positioned and prepared to welcome these new aircraft, but the selection of Pease would have tremendous economic and other benefits for our region. First, the selection of Pease would bring much-needed new jobs to our region, including 70 full-time and 50 part-time jobs, resulting in an additional \$7 million to the local payroll. In addition, if Pease is selected, our region's economy and local communities will benefit from \$45 million in military construction. Of course the selection of Pease would also bring a variety of other benefits to our region, including enhanced FEMA region 1 response and increased cargo and aero medical evacuation capacity.

The GPCC is proud to add our voice to those of Governor Maggie Hassan and the entire New Hampshire Congressional delegation in supporting the selection of Pease Air National Guard Base as the home of the KC-46A. If you have any questions, I can be reached at (603) 610-5516.

Sincerely,



Doug Bates  
President

500 Market St./P.O. Box 239 Portsmouth, NH 03802-0239 P 603.610.5513 F 603.436.5118 E info@portsmouthchamber.org W www.portsmouthchamber.org



37TH DISTRICT  
**MATT SMITH**  
SENATE BOX 203037  
THE STATE CAPITOL  
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319 CASTLE SHANNON BLVD.  
PITTSBURGH, PA 15234  
412-571-2169 • FAX: 412-571-2000

1009 BEAVER GRADE ROAD  
SUITE 230  
PITTSBURGH, PA 15108  
412-262-2260 • FAX: 412-262-6364

PETERS TWP. MUNICIPAL BUILDING  
610 EAST McMURRAY ROAD  
McMURRAY, PA 15317  
724-942-7210 • FAX: 724-942-7211  
TUESDAYS AND THURSDAYS  
EMAIL: SenatorSmith@senate.com  
WEBSITE: www.SenatorMattSmith.com



## Senate of Pennsylvania

**COMMITTEES**  
STATE GOVERNMENT, DEMOCRATIC CHAIR  
COMMUNITY, ECONOMIC  
& RECREATIONAL DEVELOPMENT  
CONSUMER PROTECTION  
& PROFESSIONAL LICENSURE  
FINANCE  
GAME & FISHERIES

March 24, 2014

*Via First Class U.S. Mail*

Ms. Anne Rowe  
KC-46A EIS Project Manager, NGB/A7AM  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Ms. Rowe:

As the National Guard Bureau solicits public comment and analyzes potential environmental consequences of selecting one of several Air National Guard units to serve as the 2<sup>nd</sup> Main Operating Base (MOB 2) of the KC-46A tanker, I write to comment on the key advantages and minimal environmental impacts in selecting the Pittsburgh Air National Guard Station, home to the 171<sup>st</sup> Air Refueling Wing of the Pennsylvania Air National Guard.

As the State Senator representing Pennsylvania's 37<sup>th</sup> Senatorial District, I have the distinct pleasure of representing the Pittsburgh Air National Guard Station, and as a board member of the Allegheny County Airport Authority (ACAA), enjoy the partnership these two organizations have fostered. The draft Environmental Impact Statement (EIS) has shown there to be minimal environmental impacts to the beddown of the KC-46A at the 171<sup>st</sup>. In fact, the draft finds there will be a decrease in noise disturbance and the existing facilities for fire response and crash recovery meet the KC-46A beddown requirements. The draft EIS also notes the 171<sup>st</sup> has recently completed their 53<sup>rd</sup> consecutive year and over 230,000 flying hours without a Class-A mishap. These factors make the 171<sup>st</sup> a strong candidate for selection to house the KC-46A. As you consider the viability of this site, I also encourage you to consider the financial and operational advantages and efficiencies that make the 171<sup>st</sup> uniquely suited to serve as the MOB 2 of the new KC-46A tanker fleet. I would also like to call to your attention the unique and intimate

50-1

relationship the 171<sup>st</sup> has with the local civilian and business community and the regional military community of Western Pennsylvania.

It is my understanding the 171<sup>st</sup> was chosen to be one of five alternative locations based on several criteria, including, but not limited to: its strategic location within a 90 minute flight time to 70% of the U.S. population which also covers six FEMA Regions, and its collaboration with the Pittsburgh International Airport, which provides the unit with access to four runways, inexpensive service agreements with ACAA fire and rescue operations, world-class snow removal operations, and around-the-clock tower support with no air traffic restrictions. This cost savings agreement, in addition to the nominal infrastructure expenses required to convert existing facilities to accommodate new KC-46A tankers, can save the USAF millions in operational expenses. The 171<sup>st</sup> is in close proximity to various military entities and has shown a willingness and vision to work cooperatively with other branches of the military with the goal of streamlining services and sharing costs. Nearby installations include the 911<sup>th</sup> Airlift Wing of the Air Force Reserve and the McGarity U.S. Army Reserve Center. In the near future, a Navy Operations Center will be co-locating with the 911<sup>th</sup> Airlift Wing, and a Post Exchange and Commissary are being constructed a short distance from the 171<sup>st</sup>.

I believe the Pittsburgh Air National Guard Base is a proven and efficient installation that merits thorough consideration for the selection of the MOB 2 beddown of the KC-46A fleet. Thank you for your consideration. If I can provide additional information, please do not hesitate to contact me.

Sincerely,



MATT SMITH  
State Senator  
37<sup>th</sup> Senate District  
[www.SenatorMattSmith.com](http://www.SenatorMattSmith.com)

cc: The Honorable Deborah Lee James, Secretary, United States Air Force

50-1  
Cont.

**Congress of the United States  
Washington, DC 20515**

March 21, 2014

Mr. Robert Dogan  
KC-46A Program Manager  
National Guard Bureau/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Mr. Dogan:

We write today to express our support for Forbes Field Air National Guard Base (Forbes ANGB) to serve as the Air National Guard Second Main Operating Base (MOB 2) for the KC-46A tanker refueling mission.

The United States Air Force (USAF) recently announced, and made a case in favor of designating Pease Air National Guard Station (Pease ANG) as the “preferred alternative” for the Air National Guard operating mission. We certainly respect and appreciate the basis for the United States Air Force's (USAF) decision selecting Pease ANG. It is our belief that that the 190th Air Refueling Wing (ARW) at Forbes continues to be a top candidate and an excellent choice for the KC-46A mission for the MOB 2 requirement, and in future basing rounds.

We would like to share a number of additive factors below to reaffirm Forbes Field's demonstrable track record of success.

*Facilities and Location*

The Air Force's analysis demonstrates that Forbes Field has the infrastructure capability necessary to support the KC-46A mission. Currently at Forbes ANGB there are:

- Two runways (12,800x150 & 7,000X150).
- Existing ramp space for 16 aircraft.
- Five hangar spaces (3 fully closed).

Forbes enjoys unencumbered airspace with access to the highest density of refueling operations in the Continental United States (CONUS) for which the KC-46A MOB 2 site will provide support. Additionally, there are Operations and Maintenance facilities that can house additional Airmen with no additional cost or construction.

*KC-135 Operations in Kansas*

In 2013, McConnell Air Force Base was selected as the Main Operating Base (MOB 1) for the KC-46A mission for a wealth of reasons, but its successful history of operation with the KC-135 tanker since 1971 was one of the most obvious and significant. Equally, since 1978 the

PRINTED ON RECYCLED PAPER

190th ARW at Forbes has conducted KC-135 refueling operations. Like McConnell AFB, Forbes has a successful and longstanding history of tanker operations as a major force in the refueling of military aircraft.

By bringing the centralizing the KC-46A mission around tanker experts at Forbes and McConnell, base leadership and the community can be assured that not only will the transition be significantly easier than alternative bases, but that the continuation of this mission, which will house the next generation of aircraft and pilots, will ensure the installation will continue to play a crucial role in military operations for decades to come.

*Community Support / Cost of Living*

There has continued to be strong community support for the MOB 2 operation at Forbes Field. The State and Local governments, in coordination with military installations, have come together to ensure noise contours, appropriate zoning, and to promote air quality initiatives. Cost of living is 10% below the urban area average near Forbes ANGB, which calculates to some of the lowest housing and local area costs in the country.

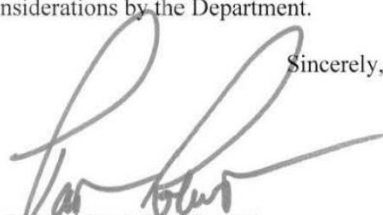
*Adaptability for an Active Association*

Forbes Field is located in Topeka, Kansas - a major metropolitan area with the amenities and high quality family resources (medical care, education, etc.,) of importance to military families. Topeka also offers well priced housing, cultural and recreational amenities and access to a major metropolitan airport within a one hour drive in Kansas City Missouri - all important family support components for a highly successful Active Association. Forbes is also located close to two Active Duty installations which provide the military support services (Human Resources, Medical, Commissaries & Exchanges) of importance to military personnel and their dependents. Fort Leavenworth (home of the Army's Command & General Staff College) is less than a one hour drive (65 miles) from Forbes, while McConnell Air Force Base (site of the KC-46A MOB 1 site) is less than two hours by car from Forbes.


In summary, we take no exception to the Air Force's decision to name Pease Air National Guard Base as the MOB 2 Preferred Alternative. We understand that the existing Active Association, along with many other positive factors, played a critical role in the Air Force's selection of Pease for the MOB 2 site.

However, we would be remiss if we did not explicate our unwavering support for Forbes Field. Led by strong community support, exceptional infrastructure, and the ideal location for the mission, Forbes would be a valid choice for future Air National Guard/Active Association KC-46A basing considerations by the Department.

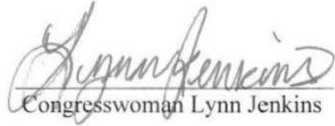
Sincerely,



Senator Pat Roberts



Senator Jerry Moran

  
Congresswoman Lynn Jenkins

  
Congressman Mike Pompeo

  
Congressman Kevin Yoder

  
Congressman Tim Huelskamp

cc: Honorable Debbie Lee James  
Ms. Kathleen Ferguson  
Lieutenant General Stanley E. Clarke



My name is Karen Benedetti, the VP of Marketing at Service Credit Union.

Tonight, I will be reading comments from Gordon Simmons, President and CEO of Service Credit Union.

Good evening all. I am sorry I could not be present tonight for this very important community forum. I am Gordon Simmons, the President and CEO of Service Credit Union, and Treasurer and Secretary of the Board of Directors. I joined the credit union in 1974, managing operations in Germany then relocating to Portsmouth New Hampshire in 1995 to serve as President and CEO, my current position.

I have served as Director and Chairman of the Defense Credit Union Council and Chairman of the Armed Forces Financial Network, and have spent many years in direct contact with Air Force and Army command headquarters, military community leaders and commanders, as well as Department of Defense liaisons in Washington, D.C.

And I am a long term resident of Portsmouth, NH. Thus I am keenly aware of the role of the military in protecting our great nation as well as assimilating into the community at large.

Service Credit Union opened its doors on Pease Air Force Base in 1957. Today we continue to serve Pease, communities across New Hampshire, and military worldwide.

I and my board of directors are keenly aware of the importance of a robust refueling capability so that the U.S. forces would not be limited in their ability to provide a global reach. The new KC-46 tanker will add increased cargo and aeromedical evacuation capabilities, providing potential lifesaving capabilities in national and international disasters.

The USAF has identified Pease ANG, home of the 157 ARW of the NH ANG, as their preferred alternative for the MOB KC 46 beddown based on an operational analysis, site surveys, and military judgment factors. Pease is in an ideal location to provide support to the nation given proximity to critical refueling tracks for missions in the Middle East, Europe and Africa. The location allows for missions to be shorter, saving time and money, thus resulting in outstanding value for the country.

We also understand that the beddown of the Pegasus needs to be sound along a whole host of environmental impacts. As such, we have reviewed the requirements of the environmental impact analysis process, which will drive the Air Force's final basing decision.

After a review of the Environmental Impact Statement, Service Credit Union is pleased to support the beddown of the KC-46 aircraft to Pease ANG based on no measurable negative impact to the community including noise, air quality, safety, soil and water, biological resources, cultural resources, land use, infrastructure and transportation, and hazardous materials and waste. In fact, new any facilities and additions associated with

this project would be implemented with more energy efficient design standards and utility systems than are currently in place.

Socioeconomically, there would be an uptick in economic activity associated with the construction activities at the 157 ARW installation which would provide short-term economic benefits to the local community.

The Pease Air National Guard Base is noted as providing approximately \$135 million to the local economy. The Air National Guard expects the Pegasus coming to Pease will add an additional \$45 million of construction and \$7 million in annual payroll to workers within the region.

The KC-46 mission would add up to an additional 171 military positions (a 12% increase to existing 157 ARW personnel). The community would welcome 233 family members, with many purchasing homes in the surrounding communities.

The Pease Air National Guard Base is the most logical base for the beddown of the Pegasus and will ensure that Pease remains a leader in our nation's defense for many years to come.

Thank you.



**SERVICE  
CREDIT UNION**



**CORPORATE OFFICES**

PO BOX 1268  
PORTSMOUTH, NH 03802-1268

March 6, 2014

National Guard Bureau  
KC-46 EIS Public Hearing  
Portsmouth Town Hall  
Portsmouth, New Hampshire

Dear Sir/Madam:

Good evening all. I am sorry I could not be present tonight for this very important community forum. I am Gordon Simmons, the President and CEO of Service Credit Union, and Treasurer and Secretary of the Board of Directors. I joined the credit union in 1974, managing operations in Germany then relocating to Portsmouth New Hampshire in 1995 to serve as President and CEO, my current position.

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Service Credit Union opened its doors on Pease Air Force Base in 1957. Today we continue to serve Pease, communities across New Hampshire, and military worldwide.

The Service Credit Union Board of Directors and I are keenly aware of the importance of a robust refueling capability so that the U.S. forces would not be limited in their ability to provide a global reach. The new KC-46 tanker will add increased cargo and aeromedical evacuation capabilities, providing potential lifesaving capabilities in national and international disasters.

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Office of the President  
Telephone (603) 422-8300 • Fax (603) 422-8390  
3003 Lafayette Road • Portsmouth, NH 03801  
[www.servicecu.org](http://www.servicecu.org)



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After a review of the Environmental Impact Statement, Service Credit Union is pleased to support the beddown of the KC-46 aircraft to Pease ANG base based on no measurable negative impact to the community including noise, air quality, safety, soil and water, biological resources, cultural resources, land use, infrastructure and transportation, and hazardous materials and waste. In fact, new any facilities and additions associated with this project would be implemented with more energy efficient design standards and utility systems than are currently in place.

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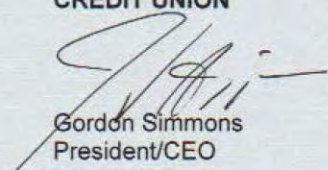
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The KC-46 mission would add up to an additional 171 military positions (a 12% increase to existing 157 ARW personnel). The community would welcome 233 family members, with many purchasing homes in the surrounding communities.

The Pease Air National Guard Base is the most logical base for the beddown of the Pegasus and will ensure that Pease remains a leader in our nation's defense for many years to come.

Very truly yours,

**SERVICE  
CREDIT UNION**



Gordon Simmons  
President/CEO

JEANNE SHAHEEN  
NEW HAMPSHIRE



United States Senate

WASHINGTON, DC 20510

March 6, 2014

The Honorable Deborah Lee James  
Secretary of the Air Force  
1670 Air Force Pentagon  
Washington, DC 20330

Dear Secretary James:

Thank you for the opportunity to comment on the basing of the Air Force's new KC-46A refueling tanker at Pease Air National Guard Base. I have been a strong advocate for Pease's selection as one of the first bases to locate this new tanker and I am pleased to continue supporting this critical program.

Pease and the 157<sup>th</sup> Air Refueling Wing have been providing continuous air refueling coverage to critical combatant commands overseas since September 11, 2001. The 157th currently flies eight KC-135R Stratotanker aircraft and nearly 1,000 personnel support this mission on a continuing basis with distinction and pride. Pease's preliminary selection as one of the first locations for the KC-46A underscores this strong record of success.

Pease is the preeminent location for basing of the KC-46A; based on its experienced personnel, open airspace, close partnership with an active associate unit, modern facilities, significant ramp space, long runway, cost effectiveness, and strategic location to support current and future requirements for the military. No other unit in the northeast can provide the level of aircraft utilization more cost effectively than the 157th Air Refueling Wing at Pease.

In selecting Pease as one of the first locations for the new tanker, the Air Force has expressed its confidence that the personnel at Pease will continue a proud tradition of excellence and service with this new, state-of-the-art aircraft. I know the Pease community will rise to meet the challenge of basing the KC-46A, and I stand ready to work with the U.S. Air Force, the Air National Guard, and community leaders to ensure a smooth transition to this new generation of tankers.

Sincerely,

A handwritten signature in cursive script that reads "Jeanne Shaheen".

Jeanne Shaheen  
United States Senator





March 3, 2014

## Shawnee County Board of Commissioners

Shelly Buhler, 1st district  
Kevin Cook, 2nd district  
Bob Archer, 3rd district

The Honorable Deborah James  
Secretary of the Air Force  
1670 Air Force Pentagon  
Washington, DC 20330

General Mark A. Welsh  
Chief of Staff – United States Air Force  
1670 Air Force Pentagon  
Washington, DC 20330

Dear Secretary Donley and General Welsh:

The Shawnee County Board of Commissioners would like to encourage the U.S. Air Force to bring the first Air National Guard KC-46A Main Operating Base to the Forbes Field Air National Guard Base in Topeka. The 190<sup>th</sup> Air Refueling Wing has called Forbes home for many years and with leadership from the Air Force and Air National Guard, it has become one of the most significant tanker operations in the country.

Forbes Field has excellent facilities and would easily house the KC-46A and additional Airmen. In addition to the excellent facilities at Forbes Field, Topeka also offers some of the most affordable housing in the country. Topeka has first class medical facilities, an abundance of shopping throughout the community, and a wide variety of entertainment. We have first rate schools and are home to Washburn University which draws many students from throughout the world as well as our local students.

We have always been proud to be the home of the Air National Guard's 190<sup>th</sup> Air Refueling Wing and would be equally proud to be the home of the new KC-46A. The Airmen from the 190<sup>th</sup> are active in our community and highly respected by the citizens in our community. The active duty Airmen and their families with the KC-46A Operating Base would equally be welcomed and would quickly become a part of the Topeka-Shawnee County family.

The Board of County Commissioners strongly encourages you to consider Forbes Field Air National Guard Base as the new home for the Air National Guard KC-46A Main Operating Base. We stand ready to provide whatever assistance we can to assure a smooth transition and move to Topeka.

Sincerely,

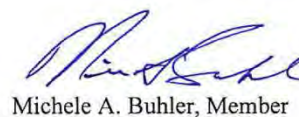
The Board of Commissioners  
Shawnee County, Kansas



Robert E. Archer, Chair



Kevin J. Cook, Vice Chair



Michele A. Buhler, Member

200 SE 7th Street, Rm. B-11, Courthouse Topeka, Kansas 66603-3933  
(785) 233-8200 ext 4040 • Fax: (785) 291-4914 • E-Mail: [Commission@snco.us](mailto:Commission@snco.us) • Internet Address: [www.snco.us](http://www.snco.us)

CAROL SHEA-PORTER  
FIRST DISTRICT, NEW HAMPSHIRE

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WASHINGTON, DC 20515  
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(202) 225-8822 (FAX)

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(603) 641-9561 (FAX)

20 NORTH MAIN STREET  
ROCHESTER, NH 03867  
(603) 335-7700  
(603) 335-7702 (FAX)



Congress of the United States  
House of Representatives  
Washington, DC 20515

COMMITTEE ON ARMED SERVICES  
READINESS  
MILITARY PERSONNEL

COMMITTEE ON NATURAL RESOURCES  
PUBLIC LANDS AND ENVIRONMENTAL REGULATION  
FISHERIES, WILDLIFE, OCEANS,  
AND INSULAR AFFAIRS

[www.shea-porter.house.gov](http://www.shea-porter.house.gov)

March 6, 2014

Dear Friends:

Thank you for inviting me to the public hearing on the Draft Environmental Impact Statement for the KC-46A Pease basing proposal. I regret that I cannot be with you in person this evening.

I would like to express my continued support for basing the KC-46A air refueling tanker at Pease Air National Guard Base. I have been a strong advocate for Pease because it is the ideal candidate for the KC-46A due to its proximity to operational and training refueling tracks, its aircraft-related infrastructure, its training flight simulator, and its Active Duty Association. In addition, the 157th Air Refueling Wing at Pease has received the prestigious Air Force Outstanding Unit Award eleven times, most recently last year. I believe that having the KC-46A refueling tanker at Pease will be good for our nation and for our area.

Thank you to the National Guard Bureau for organizing, and the City of Portsmouth for hosting, this Environmental Impact Statement Public Hearing. I would also like to thank all of the members of the National Guard here tonight for your dedication to our nation.

Sincerely,

Carol Shea-Porter  
Member of Congress

PRINTED ON RECYCLED PAPER

March 12, 2014

Kittery, ME 03904

KC-46A EIS Project Manager,  
NGB/A7AM Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157pping

I am writing to urge you to include New Hampshire's Pease Air National Guard Air Guard Station in consideration in the MOB KC-46A Beddown Air National Guard.

This location best suits the mission of the United States Air Force in facilitating transit to and from Europe from a base considerably closer to that theater than the alternatives, a distance that can prove to be a critical during an emergency. The NHANGS and 157<sup>th</sup> Air Refueling Wing are a good neighbor to the surrounding community, providing employment hosting air shows and contributing to the quality of life in the seacoast area of NH & Maine in more ways than can be listed in a single letter. 56-1

This area of New England has proudly served as home for military aircraft since just after WWII, and it welcomes the next generation of air fueling aircraft that will replace the aging KC-135 fleet. While those jets have served admirably for some five decades, it is time to provide their crews with an aircraft that has greater capacity, the ability to serve multiple branches of the military as well as our allies, and to carry cargo and medevac missions in times of need.

According to the USAF Environmental Impact Study, the NHANGS is currently responsible for 16% of flight operations at Pease International Airport (IAP). Living roughly four miles from the runway I am occasionally aware of the noise from circling air tankers while working around my yard, though appreciative of the airport restrictions, which limit low approaches or touch-and-go's between 11pm and 7am, and before noon on Sundays. At least in this neighborhood NNE of the runway's mid-point we notice much higher levels of noise from news media helicopters and corporate jets than military aircraft. It is my understanding, the KC-46A replacement aircraft will operate at or below current noise levels of the current air tanker. 56-2

Professionally I work with corporations to reduce their reliance on fossil fuels, decreasing the impact on climate change. The proposal to replace the existing fleet of eight KC-135's and I backup with the newest generation of air tanker is a positive step from an environmental standpoint. The US Environmental Protection Administration recently designated South East region of NH as an air-quality attainment area. This represents a positive improvement in terms of ozone due to a number of factors including a more comprehensive focus on energy efficiency at both the state and local level. 56-3



Employing an aircraft that consumes less fuel at and assuming the current level of 6,140 annual field operations as stated in the EIS, the NH ANG should not have an adverse impact on the region's air quality or sensitive environmental places. Thirty-four percent of the area adjoining IAP consists water; the Piscataqua-Salmon Falls River Watershed, Great and Little Bays, Portsmouth Harbor and the Atlantic Ocean. The statistics mention the 157 ARW has not suffered a major mishap in a decade, reported just three emergency fuel jettisons 2011-2012, and fewer than 20 BASH collisions per year, all well within acceptable standards for a military unit flying in close proximity to a developed area.

56-3  
Cont.

My only concern is that the EIS provides an incomplete picture of the NHANG's impact on the local economy. The data included in the report (3-82) includes Rockingham County, the town of Newington, City of Portsmouth and NH in terms of education, employment, housing and population. The next section goes on to list the Portsmouth Naval Shipyard and the UA Local 488 Marine Pipefitters union, as two of the area's four principal employers. However, both of those entities are located just across the state line in Kittery, Maine. As a resident of this region since 1984, I believe that a more accurate assessment would include York County Maine, Eliot, Kittery and York, ME since many of the NHANG employees actually reside on this side of the border, shopping in our stores, and sending their children to our schools. While one might find this a minor point, the impact of the 157<sup>th</sup> operations on the entire region does come into play in the event of a Defense Base Closure and Realignment process, which may draw from previous government documents. For this reason, I would encourage the USAF to included expanded commentary in the appropriate section of the final EIS.

56-4

As the son of a member of the 322<sup>nd</sup> FG of the USAAC the prospect of the new twelve KC-46A operating from Pease Air National Guard Station is one which my family and many of our neighbors heartily support.

Sincerely,

Robert A. Sheppard



## The Senate of the State of New Hampshire

107 North Main Street, Concord, N.H. 03301-4951

MARTHA FULLER CLARK  
Senate District 21

State House Rm. 115  
(603) 271-3077

February 25, 2014

National Guard Bureau  
3501 Fechet Avenue  
Joint Base Andrews MD 20762-5157

Dear Members of the National Guard Bureau

I am writing in support of bringing the Air Force's new tankers, the KC-46, to the Pease Air National Guard base at the Pease Trade Port Center, Portsmouth, New Hampshire. I believe that the 157<sup>th</sup> Air Refueling Wing is ideally suited to be the first Air National Guard unit in the country to field the KC-46. The 157<sup>th</sup> has established a track record of unparalleled excellence; winning the Air Force Outstanding Unit award 11 times.

In just the last two years, Pease Air National Guard Base has reduced energy consumption by approximately 35% through facility modification and new construction projects. The KC-46, with its new technologically improved design based on the more fuel efficient Boeing 767 airliner, will give Pease the opportunity to continue this trend and conserve our valuable natural resources.

The new tanker also adds increased cargo and aero medical evacuation capabilities, which can provide potentially lifesaving capabilities in national disasters and for overseas missions. Pease is the ideal location to provide such support to our nation, close to strategic refueling tracks for missions to the Middle East, Europe, and Africa. Its exceptional location allows for missions to be shorter, saving millions in fuel costs; thereby providing an outstanding value for the country.

The 157<sup>th</sup> Wing is a vital aspect of the seacoast economy, generating revenue for small businesses and services. It is also popular with thousands who work at or around Pease. Currently Pease ANGB provides approximately \$135 million to the local economy. Bringing the KC-46 to Pease will add over 100 new jobs and provide an additional \$7 million in annual payroll to the region. It will also add \$45 million in military construction to the local economy.

Clearly, having the Air Force's number one acquisition, the KC-46, based here in NH will also help to ensure the continued vitality of Pease and the local seacoast communities for many years to come.

I highly recommend to the committee the selection of the Pease and the 15<sup>th</sup> Air Fueling Wing as an outstanding site for the bedding of the new KC-46 tankers.

Most sincerely,

*Martha Fuller Clark*  
State Senator Martha Fuller Clark  
NH District 21





Public Hearing  
National Guard Bureau  
Environmental Impact Statement (EIS) for the  
KC-46A Beddown at Candidate Air National Guard Installations

### COMMENT SHEET

Thank you for providing your comments on the proposed beddown of KC-46A aircraft for the Air National Guard at one of five candidate locations. Please provide us with your written comments no later than March 24, 2014. Comments may be submitted at the meeting, mailed to the address below, or submitted via email to: [ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil). Please put "KC-46A Beddown EIS" in the subject line.

*I fully support the replacement of the aging KC-135 at Pease with the newer, quieter, more fuel efficient Boeing KC-46A.*

*I am a resident of Portsmouth. I remember the high noise level when there were B52s and F-111s at Pease.*

*The KC46A is a dramatic improvement.*

Over for more space →

\*\*\*Please Print\*\*\*

Name:

*Thomas W Gross*

Address:

*Portsmouth NH 03801*

Do you wish to receive a CD of the Final Environmental Impact Statement? Yes ☐ No ☐

Do you wish to receive a hard copy of the Final Environmental Impact Statement? Yes ☐ No ☐

**Note: Your address will not be made public if you are just requesting a copy of the Draft EIS.**

Please give this form to one of the Air National Guard representatives tonight or mail/email to:

**KC-46A EIS Project Manager**  
NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157  
[ang.env.comments@ang.af.mil](mailto:ang.env.comments@ang.af.mil)



March 12, 2014

The Honorable Deborah James  
Secretary of the Air Force  
1670 Air Force Pentagon  
Washington, DC 20330

General Mark A. Welsh  
Chief of Staff - United States Air Force  
1670 Air Force Pentagon  
Washington, DC 20330

Dear Secretary James and General Welsh,

The Greater Topeka Chamber of Commerce strongly urges the U.S. Air Force to place the first Air National Guard KC-46A Main Operating Base with the 190<sup>th</sup> Air Refueling Wing at Forbes Field Air National Guard Base, Topeka, Kansas. The 190<sup>th</sup> ARW has worked diligently over the years along with leadership from the Air Force and Air National Guard to create one of the highest-quality and most cost effective tanker operations in the country. They have done that with the strong support of this community which has been home to Forbes Field since 1942.

Forbes Field is optimally located to support the aerial refueling needs of the Department of Defense as well as having first class facilities that would require very little investment to house the KC-46A and additional active duty Airmen. The existing ramp space will accommodate the larger aircraft with room to spare. Furthermore, a recent collaborative effort by the 190<sup>th</sup> ARW, City of Topeka, Shawnee County, Topeka Chamber and local industry was successful in rezoning areas around the base that will help protect the runway from encroachment for years to come.

In addition to the many positives Forbes Field has to offer, the greater Topeka community is also well positioned to meet the needs of active duty Airmen and their families assigned to the base. The Topeka community has the necessary quality housing to accommodate additional personnel and their families. Topeka has consistently ranked as one of the most affordable metropolitan areas in the country for housing costs; additionally in 2011 Topeka's housing was ranked #6 in affordable housing for veterans in the country by Livability.com.

Topeka has also benefited from several large corporations that have recently built facilities near Forbes Field that provide well paying jobs that military dependents may be interested in. We have high achieving, strong K-12 public and parochial/private schools throughout the community; these schools have innovative programs, newer facilities and are technology rich. Topeka is also home to Washburn University, which is just a few minutes drive from the base and will provide Airmen and their dependents with the opportunity to receive a college degree while stationed at Forbes Field. The University of Kansas and Kansas State University are both located less than an hour from Topeka.

120 SE Sixth Avenue, Suite 110 Topeka, Kansas 66603-3515  
P 785.234.2644 TopekaChamber.org GoTopeka.com



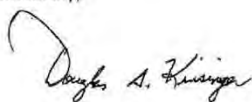
Finally, the 190<sup>th</sup> ARW has built a strong and positive working relationship with the Metropolitan Topeka Airport Authority created through a strong commitment to public/private partnerships. This lasting relationship gives the 190<sup>th</sup> ARW the ability to maintain a secure and low-cost installation by sharing infrastructure and costs for dual use facilities and functions.

The Topeka Community actively embraces the 190<sup>th</sup> ARW, not only for the economic impact, but for the many intangible impacts military service has on our community. 190<sup>th</sup> ARW personnel are locally regarded as the highest quality community members, respected by both the business community and the citizens of Topeka and Kansas. The Greater Topeka Chamber of Commerce places such importance in the 190<sup>th</sup>'s presence in Topeka that a permanent position was created in 2004 on the Chamber board of directors for the 190<sup>th</sup> ARW commander to be assured the needs of the 190<sup>th</sup> and their mission are always supported by the business community.

Additionally, the citizen Airmen from the 190<sup>th</sup> are our neighbors and friends. They provide our community with leadership and the core values instilled by the Air Force. We are proud to be the home of the Air National Guard's 190<sup>th</sup> ARW.

The Topeka Chamber of Commerce and community stand with the 190<sup>th</sup> ARW, the Adjutant General and Governor of Kansas to encourage your attention to their capabilities and readiness to accept the new assignment of KC-46A tankers. We are always ready to provide assistance and partnership with the 190<sup>th</sup> ARW and express our desire to have the new Air National Guard KC-46A Main Operating Base at Forbes Field Air National Guard Base, Topeka, Kansas.

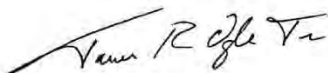
Sincerely,



Doug S. Kinsinger  
Greater Topeka Chamber of Commerce  
GO Topeka Economic Partnership



Neil Dobler  
Bartlett & West  
Board Chair, Greater Topeka Chamber of Commerce



Jim R. Ogle Jr.  
WIBW Channels



Allan Towle  
Fidelity State Bank and Trust



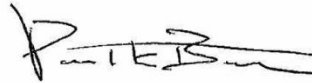
Coleen Jennison  
Cox Communications



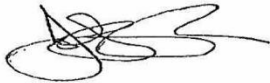
Karla Clem  
M-C Industries, Inc.



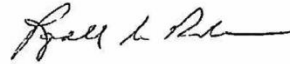
Curtis Sneden  
Payless ShoeSource



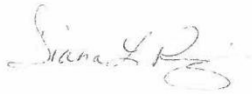
Paul K. Bossert  
Premier Employment Solutions



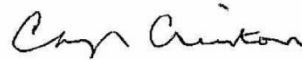
John Dicus  
Capital Federal



Randy Pembroke  
Washburn University



Diana Ramirez  
Express Employment Professionals



Cheryl Creviston  
Jayhawk File Express, LLC



Kurt Scott  
Kansas Medical Mutual Insurance Company  
(KaMMCO)



Michaela Shaver  
Mickey's Promotions



Bret Spangler  
Mars Chocolate North America



Allen Moore  
Frito-Lay, Inc.



Kim Svoboda  
Dillons/Kroger

From: [susan\\_zimmermann@fws.gov](mailto:susan_zimmermann@fws.gov) [mailto:[susan\\_zimmermann@fws.gov](mailto:susan_zimmermann@fws.gov)] On Behalf  
Of Ohio, FW3  
Sent: Monday, March 10, 2014 2:07 PM  
To: ANGR/NGB/A7A NEPA COMMENTS  
Subject: Draft EIS - Second Main Operating Base KC-46A Beddown

TAILS# 03E15000-2014-TA-0844

Dear Ms. Rowe,

We have received your recent correspondence requesting information about the subject proposal. There are no Federal wilderness areas, wildlife refuges or designated critical habitat within the vicinity of the project area. The following comments and recommendations will assist you in fulfilling the requirements for consultation under section 7 of the Endangered Species Act of 1973, as amended (ESA).

The Service recommends that proposed developments avoid and minimize water quality impacts and impacts to high quality fish and wildlife habitat (e.g., forests, streams, wetlands). Additionally, natural buffers around streams and wetlands should be preserved to enhance beneficial functions. If streams or wetlands will be impacted, the Corps of Engineers should be contacted to determine whether a Clean Water Act section 404 permit is required. Best management practices should be used to minimize erosion, especially on slopes. All disturbed areas should be mulched and revegetated with native plant species. Prevention of non-native, invasive plant establishment is critical in maintaining high quality habitats.

**ENDANGERED SPECIES COMMENTS:** All projects in the State of Ohio lie within the range of the Indiana bat (*Myotis sodalis*), a federally listed endangered species. Since first listed as endangered in 1967, their population has declined by nearly 60%. Several factors have contributed to the decline of the Indiana bat, including the loss and degradation of suitable hibernacula, human disturbance during hibernation, pesticides, and the loss and degradation of forested habitat, particularly stands of large, mature trees. Fragmentation of forest habitat may also contribute to declines. During winter, Indiana bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

- (1) dead or live trees and snags with peeling or exfoliating bark, split tree trunk and/or branches, or cavities, which may be used as maternity roost areas;
- (2) live trees (such as shagbark hickory and oaks) which have exfoliating bark;
- (3) stream corridors, riparian areas, and upland woodlots which provide forage sites.

Should habitat exhibiting the characteristics described above be present at the proposed project site, we recommend that they, as well as surrounding trees, be saved wherever possible. However, if these trees cannot be avoided, they should only be cut between October 1 and March 31. If implementation of the seasonal tree cutting restriction is not possible, summer surveys should be conducted to document the presence or likely absence of the Indiana bat within the project area during the summer. The survey must be conducted by an approved surveyor and be designed and conducted in coordination with the Endangered Species Coordinator for this office.

The proposed project lies within the range of the northern long-eared bat (*Myotis septentrionalis*), a species that is currently proposed for listing as federally endangered. Recently white-nose syndrome (WNS), a novel fungal pathogen, has caused serious declines in the northern long-eared bat population in the northeastern U.S. WNS has also been documented in Ohio, but the full extent of the impacts from WNS in Ohio are not yet known.

During winter, northern long-eared bats hibernate in caves and abandoned mines. Summer habitat requirements for the species are not well defined but the following are considered important:

- (1) Roosting habitat in dead or live trees and snags with cavities, peeling or exfoliating bark, split tree trunk and/or branches, which may be used as maternity roost areas;
- (2) Foraging habitat in upland and lowland woodlots and tree lined corridors;
- (3) Occasionally they may roost in structures like barns and sheds.

It appears that habitat exhibiting the characteristics described above may be present at the proposed project site. We recommend that trees exhibiting

any of the characteristics listed above, as well as any wooded areas or tree lined corridors be saved wherever possible. However, if these areas cannot be avoided, they should only be cut from October 1 through March 31.

If there is a Federal nexus for the project (e.g., Federal funding provided, Federal permits required to construct), no tree clearing on any portion of the parcel should occur until consultation under section 7 of the ESA, between the Service and the Federal action agency, is completed. We recommend that the Federal action agency submit a determination of effects to this office, relative to the Indiana bat, for our review and concurrence.

Due to the project type, size, and location, we do not anticipate adverse effects to any other federally endangered, threatened, proposed, or candidate species. Should the project design change, or during the term of this action, additional information on listed or proposed species or their critical habitat become available, or if new information reveals effects of the action that were not previously considered, consultation with the Service should be initiated to assess any potential impacts.

These comments have been prepared under the authority of the Fish and Wildlife Coordination Act (48 Stat. 401, as amended; 16 U.S.C. 661 et seq.), the Endangered Species Act of 1973 (ESA), as amended, and are consistent with the intent of the National Environmental Policy Act of 1969 and the U. S. Fish and Wildlife Service's Mitigation Policy. This letter provides technical assistance only and does not serve as a completed section 7 consultation document.

Sincerely,

Inline image 1

Mary Knapp, Ph.D.  
Field Supervisor



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY  
REGION 1  
5 POST OFFICE SQUARE, SUITE 100  
BOSTON, MA 02109-3912

OFFICE OF THE  
REGIONAL ADMINISTRATOR

March 24, 2014

Anne Rowe  
NGB/A7AM, 3501 Fetchet Avenue  
Joint Base Andrews MD  
20762-5157

RE: Comments on Draft Environmental Impact Statement for the Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations (CEQ # 20140026)

Dear Ms Rowe:

The Environmental Protection Agency-New England Region (EPA) has reviewed the United States Air Force (USAF) Draft Environmental Impact Statement (DEIS) for the establishment of a Second Main Operating Base for the KC-46A refueling aircraft beddown at alternative Air National Guard Installations. We submit the following comments on the DEIS in accordance with our responsibilities under the National Environmental Policy Act (NEPA) and Section 309 of the Clean Air Act.

The DEIS describes the work necessary to establish a Second Main Operating Base (MOB 2) for beddown (homebasing) of the new KC-46A refueling aircraft. The DEIS analyzes five alternative locations for the action including: Forbes Air National Guard Station (ANGS), Kansas; Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey; Pease ANGS, New Hampshire; Pittsburgh ANGS, Pennsylvania; and, Rickenbacker ANGS, Ohio. The DEIS identifies the Pease ANGS as the preferred alternative location for the beddown.

According to the DEIS the proposed beddown would allow for efficient regional and global refueling activities to continue with the deployment of twelve new KC-46A aircraft to the selected base. Existing KC-135 aircraft at Pease ANGS (and other locations where KC-46A aircraft are deployed in the future) would be relocated and/or retired from the USAF inventory. The DEIS notes that the Pease ANGS has acceptable facilities to support the proposed beddown but that other work would be necessary to support the action including renovations/additions to existing buildings and hangars on the property; taxiway construction/upgrades; and installation of new fuel hydrants and lines. The project will also result in a 23,617 square foot increase in impervious area on the property. The DEIS explains that the construction would follow Leadership in Energy and Environmental Design (LEED) and sustainable development concepts to "achieve optimum resource efficiency, constructability, sustainability, and energy

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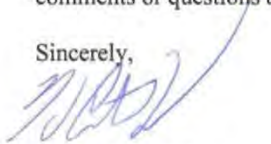


conservation, while minimizing adverse impacts to the built and natural environments through all phases of the project's life cycle." EPA supports these sustainability efforts by the Air Force.

EPA appreciates the opportunity to review the DEIS. Based on our review, we have no objection to the preferred alternative as proposed, but we believe additional information is necessary in order to more fully describe and clarify the potential environmental impacts associated with the alternatives considered in the DEIS. We have provided specific comments in the attachment to this letter describing our concerns and look forward to working with the Air Force as necessary so they can be addressed in the FEIS. Our specific comments focus on the Pease and Pittsburgh sites, but we encourage the Air Force to provide consistent information in the FEIS for all of the locations considered to better inform comparisons among the alternatives. Based on our review we have rated the DEIS "EC-2—Environmental Concerns-Insufficient Information" in accordance with EPA's national rating system, a description of which is attached to this letter.

Please contact Timothy Timmermann, Associate Director of EPA New England's Office of Environmental Review at 617-918-1025 or [timmermann.timothy@epa.gov](mailto:timmermann.timothy@epa.gov), with any comments or questions about this letter.

Sincerely,



H. Curtis Spalding  
Regional Administrator

Attachment

## **Summary of Rating Definitions and Follow-up Action**

### Environmental Impact of the Action

#### **LO--Lack of Objections**

The EPA review has not identified any potential environmental impacts requiring substantive changes to the proposal. The review may have disclosed opportunities for application of mitigation measures that could be accomplished with no more than minor changes to the proposal.

#### **EC--Environmental Concerns**

The EPA review has identified environmental impacts that should be avoided in order to fully protect the environment. Corrective measures may require changes to the preferred alternative or application of mitigation measures that can reduce the environmental impact. EPA would like to work with the lead agency to reduce these impacts.

#### **EO--Environmental Objections**

The EPA review has identified significant environmental impacts that must be avoided in order to provide adequate protection for the environment. Corrective measures may require substantial changes to the preferred alternative or consideration of some other project alternative (including the no action alternative or a new alternative). EPA intends to work with the lead agency to reduce these impacts.

#### **EU--Environmentally Unsatisfactory**

The EPA review has identified adverse environmental impacts that are of sufficient magnitude that they are unsatisfactory from the standpoint of public health or welfare or environmental quality. EPA intends to work with the lead agency to reduce these impacts. If the potentially unsatisfactory impacts are not corrected at the final EIS stage, this proposal will be recommended for referral to the CEQ.

### Adequacy of the Impact Statement

#### **Category 1--Adequate**

EPA believes the draft EIS adequately sets forth the environmental impact(s) of the preferred alternative and those of the alternatives reasonably available to the project or action. No further analysis or data collection is necessary, but the reviewer may suggest the addition of clarifying language or information.

#### **Category 2--Insufficient Information**

The draft EIS does not contain sufficient information for EPA to fully assess environmental impacts that should be avoided in order to fully protect the environment, or the EPA reviewer has identified new reasonably available alternatives that are within the spectrum of alternatives analyzed in the draft EIS, which could reduce the environmental impacts of the action. The identified additional information, data, analyses, or discussion should be included in the final EIS.

#### **Category 3--Inadequate**

EPA does not believe that the draft EIS adequately assesses potentially significant environmental impacts of the action, or the EPA reviewer has identified new, reasonably available alternatives that are outside of the spectrum of alternatives analyzed in the draft EIS, which should be analyzed in order to reduce the potentially significant environmental impacts. EPA believes that the identified additional information, data, analyses, or discussions are of such a magnitude that they should have full public review at a draft stage. EPA does not believe that the draft EIS is adequate for the purposes of the NEPA and/or Section 309 review, and thus should be formally revised and made available for public comment in a supplemental or revised draft EIS. On the basis of the potential significant impacts involved, this proposal could be a candidate for referral to the CEQ.

## **Additional Detailed Comments Regarding the DEIS for the Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations**

### **General Comments**

#### Selection of the Preferred Alternative

The DEIS notes that the "...Secretary of the Air Force considered the objective screening results as well as qualitative operational factors in determining the alternative installations for the KC-46A MOB 2 mission." The USAF subsequently selected Pease ANG based on an analysis of operational issues, the results of site surveys, and military judgment factors." The military judgment factors considered are listed in the DEIS but, beyond the general list, there is no substantive discussion provided to explain why the preferred alternative was selected. Based on the information provided in the DEIS it appears that any one of the candidate sites analyzed could be viable.

While we do not object to the selection of the preferred alternative, we believe the EIS would benefit from a more detailed description of how environmental factors were utilized to select the preferred alternative. The DEIS presents tables that outline the potential impacts if the beddown were to occur at each base but lacks any comparative analysis to explain whether one location is superior to another based on the impacts analysis. It would also be helpful to understand whether the environmental and military judgment factors align and how this might affect the selection process. As an example, if an operational goal for this round of KC-46A deployment is focused on regional refueling support along the eastern seaboard it would be a prudent move from an operational efficiency and environmental impact standpoint to select a site like Pease ANG (as opposed to a site away from the coast) to avoid efficiency losses and potentially greater greenhouse gas (GHG) emissions from increased flight distances.

#### Fuel Jettisoning

The DEIS explains that airbases establish jettison areas and develop procedures to minimize the impact of fuel jettisoning on the surrounding environment. Beyond stating that the new KC-46A aircraft are also capable of jettisoning fuel, the DEIS does not explain whether this would be more or less likely than with the current fleet. The FEIS should explain the expected change in fuel jettisoning with the change in aircraft and discuss the potential health and environmental impacts on affected areas (for each of the bases under review) as it relates to the new aircraft.

#### Leadership in Energy and Environmental Design (LEED)

The description of the alternatives mentions that LEED and sustainable development principles will be incorporated in the construction of support facilities for the project. Additional detail should be provided in the FEIS regarding all of the proposed measures.

#### Miscellaneous

Although the DEIS had a Glossary, many of the acronyms were not listed. A complete list of acronyms used should be provided in the FEIS.

61-1

**Pease ANGS Alternative**Air Quality--General Conformity

The Pease ANGS site is not subject to General Conformity for the 2008 eight-hour ozone National Ambient Air Quality Standard (NAAQS, the 2008 ozone standard), as all of New Hampshire has been designated unclassifiable/attainment for the 2008 ozone standard. However, the General Conformity requirements currently remain in place for the 1997 eight-hour ozone NAAQS for the Boston-Manchester-Portsmouth (SE) NH area. On June 6, 2013 (78 FR 34178), EPA published its proposed rule for “Implementation of the 2008 National Ambient Air Quality Standards for Ozone: State Implementation Plan Requirements,” where EPA proposed revocation of the 1997 ozone standard. EPA has not yet finalized this regulation.

EPA approved redesignation of the Boston-Manchester-Portsmouth (SE), New Hampshire moderate 8-hour ozone nonattainment area to attainment for the 1997 eight-hour ozone NAAQS and the initial 10-year ozone maintenance plan for this area on Thursday, January 31, 2013; (78 FR 6741). We point out that the Boston-Manchester-Portsmouth (SE), NH maintenance area is within the Ozone Transport Region. As such, General Conformity regulations establish applicability rates for ozone maintenance areas inside an ozone transport region as equal to or exceeding the rate of 100 tons per year of nitrogen oxides (NOx) and/or 50 tons per year of volatile organic compounds (VOCs) see 40 CFR §93.153(b)(2).

61-2

Applicability rates are based on the total of direct and indirect emissions of the criteria pollutant or precursor in a nonattainment or maintenance area caused by a Federal action. The annual operational emissions that would result from KC-46A operations at Pease ANGS is calculated at 158.92 tons of NOx and 16.93 tons of VOC as stated in Table 4.3.2-1 “Comparison of Baseline and Proposed Annual Operational Emissions, 157 ARW,” on page 4-66 of the Draft EIS (also Table 3.3-2 on page D2-5). However, concurrent with the beddown of the 12 KC-46A, twelve existing KC-135 aircraft would be retired out of the Air National Guard fleet. The net annual emissions from the proposed Pease ANGS Alternative are calculated at 83.60 tons of NOx and 13.31 tons of VOC. We concur with the DEIS that the annual level of NOx and VOC from the Pease ANGS Alternative are below the General Conformity applicability rate of 100 tons per year of NOx and 50 tons per year of VOC. Therefore, General Conformity is not triggered.

Stormwater

The project will require coverage under a National Pollution Discharge Elimination System (NPDES) construction general permit (CGP) for land disturbance of one or more acres of land. If this threshold is surpassed, the Pease ANGS would need to submit a Notice of Intent and obtain coverage under the CGP and develop and implement a stormwater pollution prevention plan meeting the requirements of the most recently issued CGP.

61-3



The CGP is available at: [http://www.epa.gov/npdes/pubs/cgp2012\\_finalpermit.pdf](http://www.epa.gov/npdes/pubs/cgp2012_finalpermit.pdf).  
Additional information is available at: <http://cfpub.epa.gov/npdes/stormwater/cgp.cfm>.

The completed project may also be subject to the multi-sector general permit for stormwater discharges associated with industrial activity – air transportation sector. Moreover, if any dewatering needs to occur for project construction, the project may also be subject to the remediation general permit if there is dewatering discharge. The FEIS should discuss these various permit requirements and the steps the Air Force will take to ensure compliance with stormwater discharge regulations.

61-3 Cont.

Since this is federal facility the project should be designed and operated in a manner consistent with Section 438 of the Energy Independence and Security Act, which provides: “The sponsor of any development or redevelopment project involving a federal facility with a footprint that exceeds 5,000 square feet shall use site planning, design, construction, and maintenance strategies for the property to maintain or restore to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of flow.” 42 U.S.C. § 17094. Additional guidance is available at: <http://www.epa.gov/owow/NPS/lid/section438/>.

#### Water Supply

The DEIS does not describe or acknowledge a drinking water supply well called the Pease Trade Port Haven Well [EPA ID#1951020-002] operated by the Portsmouth Water Works. The proposed installation lies within the well’s source water protection area (SWPA). This gravel-packed supply well is approximately 4,200 feet south of the proposed facility. The FEIS should be updated to include this water supply resource.

The DEIS should include the latest raw water quality analyses for the Pease Trade Port Haven Well (i.e., inorganics, VOCs, SOCs, PAHs, etc.) from the Portsmouth Water Works to describe current ground water quality under the proposed installation location. This will provide a basis for a comparison of future potential drinking water impacts, if any, from KC-46A activities. In addition, any nearby monitoring wells should be sampled for the same constituents. The DEIS’ description of ground water impacts (page 4-74) mentions only a 0.5 acre increase in impervious surface from the project. No mention whatsoever is made of ground water quality.

61-4

The fate and transport of storm water, deicing chemicals or fire-fighting agents in the vicinity of the proposed installation are not clear in the document. The FEIS should describe the present composition of storm water runoff; and what, if any, changes in impacts will occur to surface or ground waters from the new facility construction and operation.

#### **Pittsburgh ANG S Alternative**

#### Hazardous Materials and Waste

The DEIS (page 3-105) notes, “Nineteen ASTs occur on the 171 ARW installation and are used to store diesel, jet fuel, motor gasoline, aqueous film forming foam, potassium

61-5

acetate, developer, dye penetrant, emulsifier, and rinse solution.” The location of the ASTs is not shown on the site. The FEIS should provide a map that depicts the location of the ASTs in relation to the proposed facility construction. The safety measures integrated into the AST should also be discussed.

The DEIS (page 5-27) notes, “Under Alternative #4, the total number of flying hours for the 171 ARW would increase approximately 34 percent; therefore, throughput of petroleum substances and hazardous waste streams would be expected to increase commensurately.” The FEIS should discuss if the current hazardous waste management systems can handle and treat increased hazardous waste and if additional options have been considered for incorporation to respond to the projected increase.

The Pittsburgh IAP relies on two in-stream treatment ponds to treat deicing wash. The ANG should consider upgrading its deicing facility to meet current standards.

The DEIS (page 3-106) notes, “Hazardous wastes initially accumulated at a SAP are accumulated in appropriate containers before being transferred to the installation CAP.” “The installation CAP is located in Building 501/502 (171 ARW 2009, Tower 2013b).” Building 501/502 is not identified on a map in the DEIS. The FEIS should explain whether these buildings are within the study area, depict them on a map and discuss safety procedures incorporated into the building design. The FEIS should also describe the approximate increase in waste generated as a result of the Proposed Action and if the buildings would have the capacity to handle the additional waste.

61-5 Cont.

The DEIS (page 3-106) notes, “OWSs are used to separate oils, fuels, sand, and grease from wastewater and to prevent contaminants from entering the sanitary sewer and stormwater drainage systems. Fifteen OWSs are located on the 171 ARW installation. These OWSs primarily receive discharge from floor drains in maintenance area (171 ARW 2012c).” The FEIS should provide the location of the fifteen OWSs located on the 171 ARW installation and describe whether more are necessary to compensate for the proposed action and/or to control waste from entering the sanitary sewer and stormwater drainage systems.

The DEIS (pages 3-106 and 3-107) identifies three closed ERP sites and two closed Areas of Concern (AOC) at the 171 ARW installation. The DEIS did not discuss if contaminated soils were removed if groundwater is being treated and whether these areas are subject to land control restrictions. Since the Proposed Action can occur on or in proximity to existing ERP sites and AOCs, this information and how the proposed action may affect them, is critical to assessing environmental impacts and should be provided in the FEIS.

#### Environmental Justice and the Protection of Children

The DEIS (page 3-110) discusses minority and low-income populations as well as children under the age of 18 living in the vicinity of the Pittsburgh ANG. However, the FEIS should identify census tracts and blocks depicting these populations on a map to show possible impacts and support text and tables provided.

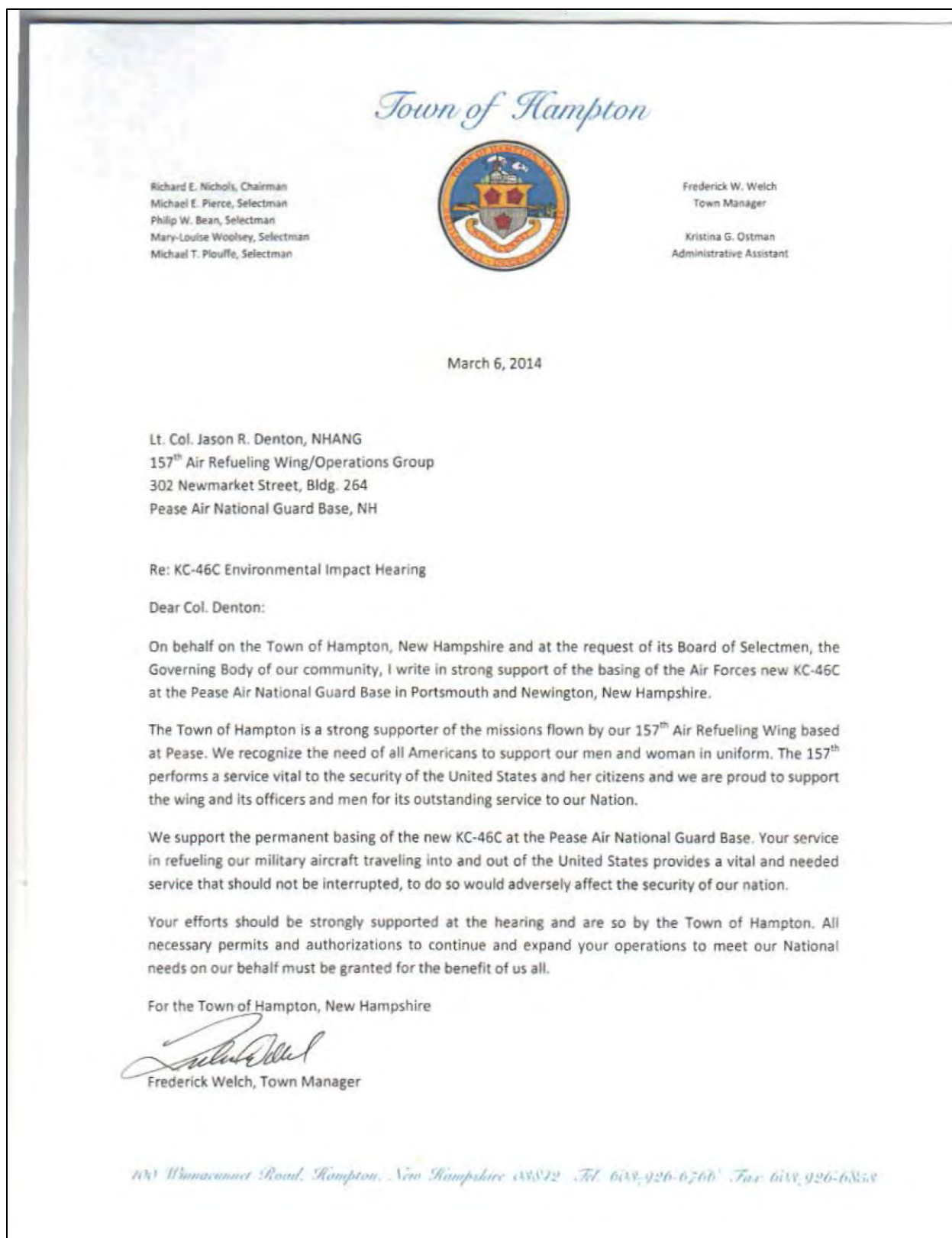
61-6

Aircraft Noise

The DEIS (page 4-89) notes, “Aircrews associated with the KC-46A would continue to practice closed patterns, including tactical procedures in which the aircraft climbs or descends in the immediate vicinity of the airfield.” “This procedure is currently being flown with the KC-135; however most tactical procedures would be accomplished in the simulator and at the other locations away from Pittsburgh IAP.” The FEIS should estimate the number of tactical procedures to take place in the simulator versus other locations and identify the other locations where this training will occur and associated impacts.

61-7









MARK A. RUELLE  
President and Chief Executive Officer

March 12, 2014

The Honorable Deborah James  
Secretary of the Air Force  
1670 Air Force Pentagon  
Washington, D.C. 20330

General Mark A. Welsh  
Chief of Staff-United States Air Force  
1670 Air Force Pentagon  
Washington, D.C. 20330

Dear Secretary James and General Welsh,

Westar Energy strongly urges the U.S. Air Force to place the Air National Guard KC-46A air refueling tankers with the 190<sup>th</sup> Air Refueling Wing at Forbes Field Air National Guard Base, Topeka, Kansas. The 190<sup>th</sup> ARW has worked diligently over the years, along with leadership from the Air Force and Air National Guard, to create one of the highest-quality and most cost-effective tanker operations in the country. They have done that with the strong support of this community, which has been home to Forbes Field since 1942.

The 190<sup>th</sup> ARW is a wonderful organization for Topeka, the state of Kansas and the entire country. We take great pride in the role it has played and will continue to play in defending our country. The 190<sup>th</sup> has an outstanding record of service, having served with distinction when its personnel and fleet of tankers have been called upon. Its safety record is stellar. Maintaining the 190<sup>th</sup> ARW's effectiveness with the new tankers would be a wise decision for the Air Force and would further strengthen the Topeka community's pride in the fact that the Air Force leadership thinks highly enough of the unit to consider it among the elite of Air National Guard operations. The KC-46A air refueling tankers would be a great addition to the 190<sup>th</sup> ARW's mission, allowing it to continue providing excellent service at Forbes for decades to come.

Forbes Field is optimally located in the center of the U.S. to support the aerial refueling needs of the Department of Defense, as well as having first-class facilities that would require very little investment to house the KC-46A and additional active-duty Air personnel. The existing ramp space will accommodate the larger aircraft with room to spare. Furthermore, a recent

818 South Kansas Avenue / P.O. Box 889 / Topeka, Kansas 66601  
Telephone: (785) 575-6530 / Fax: (785) 575-8061 / Mobile: (785) 213-6530  
mark.ruelle@WestarEnergy.com

collaborative effort by the 190<sup>th</sup> ARW, City of Topeka, Shawnee County, Topeka Chamber and local industry was successful in rezoning areas around the base that will help protect the runway from encroachment for years to come.

Additionally, the 190<sup>th</sup> ARW has built a strong and positive working relationship with the Metropolitan Topeka Airport Authority created through a strong commitment to public/private partnerships. This lasting relationship gives the 190<sup>th</sup> ARW the ability to maintain a secure and low-cost installation by sharing infrastructure and costs for dual-use facilities and functions. Recently, United Airlines began offering twice-daily, non-stop jet service between Topeka Regional Airport (located at Forbes) and Chicago's O'Hare Airport.

The Topeka community actively embraces the 190<sup>th</sup> ARW, not only for the economic impact and flow of jobs but also for the many intangible impacts military service has on our community. 190<sup>th</sup> ARW personnel are locally regarded as the highest-quality community members, respected by both the business community and the residents of Topeka and Kansas. The Greater Topeka Chamber of Commerce places such importance in the 190<sup>th</sup>'s presence in Topeka that a permanent position was created in 2004 on the Chamber board of directors for the 190<sup>th</sup> ARW commander to be assured the needs of the 190<sup>th</sup> and its mission are always supported by the business community. In sum, 190<sup>th</sup> ARW personnel are an integral, vitally important part of our community, state and nation, and we strongly support their continued growth and strength with the addition of the new KC-46As.

Westar Energy, The Topeka Chamber of Commerce and the greater Topeka community stand with the 190<sup>th</sup> ARW, the Adjutant General and Governor of Kansas to encourage your attention to their capabilities and readiness to accept the new assignment of KC-46A tankers. We are always ready to provide assistance and partnership with the 190<sup>th</sup> ARW, and we are glad to have this opportunity to express our desire to have the new Air National Guard KC-46As at Forbes Field Air National Guard Base, Topeka, Kansas. It is a GREAT location for the KC-46As!

Sincerely,



cc: Ronald W. Krueger  
Colonel, Kansas Air National Guard  
Commander, 190<sup>th</sup> Air Refueling Wing, Forbes Field

Doug A. Kinsinger  
President and CEO  
Greater Topeka Chamber of Commerce



NATIONAL GUARD BUREAU  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

US Fish & Wildlife Service  
Received

FEB 12 2014

Kansas Field Office

1 February 2014

MEMORANDUM FOR INTERESTED INDIVIDUALS, ORGANIZATIONS, PUBLIC  
GROUPS, GOVERNMENT AGENCIES, AND PUBLIC LIBRARIES

FROM: NGB/A7AM

Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

SUBJECT: Draft Environmental Impact Statement for the Second Main Operating Base KC-46A  
Beddown at Alternative Air National Guard Installations

Pursuant to the National Environmental Policy Act (NEPA) of 1969, as amended (42 United States Code [USC] 4321, *et seq.*), the Council on Environmental Quality (CEQ) Regulations for Implementing the Procedural Provisions of NEPA (40 Code of Federal Regulations [CFR] Parts 1500-1508), and Air Force policy and procedures Air Force Instruction (AFI) 32-7061 (as promulgated at 32 CFR Part 989), the National Guard Bureau (NGB) has made available for public review and comment a *Draft Environmental Impact Statement for the Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations*.

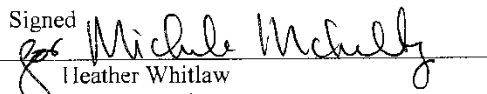
The United States Air Force (USAF) plans to replace a portion of the existing KC-135 aerial refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF plans to identify locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit. The NGB has prepared a Draft Environmental Impact Statement (EIS) to analyze the potential impacts of the MOB 2 KC-46A beddown. This letter references the MOB 2 beddown only, as the FTU and MOB 1 beddown are the subject of a separate action.

The Draft EIS analyzes potential environmental consequences that could result from the proposed beddown of KC-46A aircraft at alternative ANG installations. The NGB proposes to beddown 12 KC-46A aircraft at one of five alternative locations: Forbes Air National Guard Station (ANGS), Kansas; Joint Base McGuire-Dix-Lakehurst, New Jersey; Pease ANGS, New Hampshire; Pittsburgh ANGS, Pennsylvania; and Rickenbacker ANGS, Ohio.

The NGB also invites you to participate in the public hearings at one of the times and locations listed below. The address Date 3/13/14

☒ No Concerns/No Comment

Signed

  
Heather Whitlaw  
Field Supervisor  
U.S. Fish and Wildlife Service  
Kansas Ecological Services Field Office



*Business Is Our Business*

CHAMBER OF COMMERCE

CANAL WINCHESTER AREA CHAMBER OF COMMERCE

614-837-1556

chamber@canalwinchester.com

20 North High Street

Canal Winchester Ohio, 43110

KC-46A EIS PROJECT MANAGER  
NGBA7AM, SHEPPARD HALL  
3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

FEBRUARY 27, 2014

For the consideration of KC-46A EIS Project Mgr, NGB/A7AM:

The Canal Winchester Area Chamber of Commerce would like to encourage the United States Air Force to choose Rickenbacker Air National Guard Station as the beddown location for a squadron of KC-46A aircraft.

Rickenbacker is a well-established Air National Guard Station that currently houses aircraft of this type which should minimize that transition. The facility is located in an area that has historically, and will continue to, support and provide the resources required to keep the facility a vibrant entity.

The Central Ohio area has all of the amenities that make it a desirable location for the ANG members who staff the facility. A moderate cost of living, strong educational institutions (for ANG staff and their children) and access to 'quality of life' features, such as parks, museums and entertainment venues make Rickenbacker a place that creates a dedicated and loyal workforce.

The CWACC appreciates your consideration of Rickenbacker and pledges support and cooperation to see that a decision to locate here would be beneficial to all concerned.

Sincerely,

Erica Wymer  
Chairman of the Board

Greg Chamblin, Sr  
Chairman  
Advocacy/Economic Development Committee

Amanda Lemke  
President

Canal Winchester Area Chamber of Commerce  
20 N. High St.  
Canal Winchester, Ohio 43110  
614-837-1556  
614-837-9901 Fax  
[www.canalwinchester.com](http://www.canalwinchester.com)





**Dublin City Council**

5200 Emerald Parkway  
Dublin, Ohio 43017  
Phone: 614.410.4400

[www.dublinohiousa.gov](http://www.dublinohiousa.gov)

**Mayor**

Michael H. Keenan

**Vice Mayor**

Richard S. Gerber

Marilee Chinnici-Zuercher

Timothy A. Lecklider

Gregory S. Peterson

John G. Reiner

Amy J. Salay

**Clerk of Council**

Anne C. Clarke

February 26, 2014

The Honorable John A. Boehner  
Speaker of the House  
1011 Longworth House Office Building  
Washington, D.C. 20515

Dear Speaker Boehner,

The City of Dublin strongly supports the selection of Rickenbacker Air Guard Station for the proposed Air National Guard (ANG) KC-46A Beddown.

The Ohio Air National Guard's 121<sup>st</sup> Air Refueling Wing based at Rickenbacker has a proven record of exemplary performance in the air refueling mission.

In addition, the location, infrastructure and community support for Rickenbacker throughout Central Ohio provides a unique benefit to the Air Force. The geographic location of Rickenbacker Air Guard Station makes it well suited to provide responsive support to the significant demand for aerial refueling in the eastern United States and, in particular, the heavy concentration of fighter and cargo aircraft in the southeast states.

The local communities in Central Ohio are strong supporters of the base and its residents. The community amenities in our region and the low local area cost of living make Rickenbacker AGS an appropriate location for an active association unit.

We encourage you to continue to support the proposed Air National Guard KC-46A Beddown at Rickenbacker Air Guard Station, which will greatly benefit the region and all of Ohio.

Sincerely,

Michael H. Keenan  
Mayor

Marsha I. Grigsby  
City Manager



**Dublin City Council**

5200 Emerald Parkway  
Dublin, Ohio 43017  
Phone: 614.410.4400

[www.dublinohiousa.gov](http://www.dublinohiousa.gov)

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**Clerk of Council**

Anne C. Clarke

February 26, 2014

The Honorable Steve Stivers  
U.S. Congressman  
1022 Longworth House Office Building  
Washington, D.C. 20515

Dear Congressman Stivers,

The City of Dublin strongly supports the selection of Rickenbacker Air Guard Station for the proposed Air National Guard (ANG) KC-46A Beddown.

The Ohio Air National Guard's 121<sup>st</sup> Air Refueling Wing based at Rickenbacker has a proven record of exemplary performance in the air refueling mission.

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Sincerely,

Michael H. Keenan  
Mayor

Marsha I. Grigsby  
City Manager



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**Clerk of Council**  
Anne C. Clarke

February 26, 2014

The Honorable Sherrod Brown  
U.S. Senator  
713 Hart Senate Office Building  
Washington, D.C. 20510

Dear Senator Brown,

The City of Dublin strongly supports the selection of Rickenbacker Air Guard Station for the proposed Air National Guard (ANG) KC-46A Beddown.

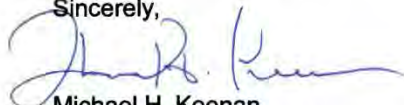
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Sincerely,



Michael H. Keenan  
Mayor



Marsha I. Grigsby  
City Manager





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Anne C. Clarke

February 26, 2014

The Honorable Jim Jordan  
U.S. Congressman  
1524 Longworth House Office Building  
Washington, D.C. 20515

Dear Congressman Jordan,

The City of Dublin strongly supports the selection of Rickenbacker Air Guard Station for the proposed Air National Guard (ANG) KC-46A Beddown.

The Ohio Air National Guard's 121<sup>st</sup> Air Refueling Wing based at Rickenbacker has a proven record of exemplary performance in the air refueling mission.

In addition, the location, infrastructure and community support for Rickenbacker throughout Central Ohio provides a unique benefit to the Air Force. The geographic location of Rickenbacker Air Guard Station makes it well suited to provide responsive support to the significant demand for aerial refueling in the eastern United States and, in particular, the heavy concentration of fighter and cargo aircraft in the southeast states.

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We encourage you to continue to support the proposed Air National Guard KC-46A Beddown at Rickenbacker Air Guard Station, which will greatly benefit the region and all of Ohio.

Sincerely,

Michael H. Keenan  
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Marsha I. Grigsby  
City Manager





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**Clerk of Council**

Anne C. Clarke

February 26, 2014

The Honorable Rob Portman  
United States Senator  
448 Russell Senate Office Building  
Washington, D.C. 20510

Dear Senator Portman,

The City of Dublin strongly supports the selection of Rickenbacker Air Guard Station for the proposed Air National Guard (ANG) KC-46A Beddown.

The Ohio Air National Guard's 121<sup>st</sup> Air Refueling Wing based at Rickenbacker has a proven record of exemplary performance in the air refueling mission.

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Sincerely,

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Mayor

Marsha I. Grigsby  
City Manager



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Amy J. Salay

**Clerk of Council**

Anne C. Clarke

February 26, 2014

The Honorable Pat Tiberi  
U.S. Congressman  
106 Cannon House Office Building  
Washington, D.C. 20515

Dear Congressman Tiberi,

The City of Dublin strongly supports the selection of Rickenbacker Air Guard Station for the proposed Air National Guard (ANG) KC-46A Beddown.

The Ohio Air National Guard's 121<sup>st</sup> Air Refueling Wing based at Rickenbacker has a proven record of exemplary performance in the air refueling mission.

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Sincerely,

Michael H. Keenan  
Mayor

Marsha I. Grigsby  
City Manager



150 South Front St, Suite 200  
Columbus, OH 43215  
T (614) 221.1321  
[columbus.org](http://columbus.org)

January 24, 2013

Colonel James V. Jones  
Commander  
121st Air Refueling Wing  
7370 Minuteman Way  
Columbus, Ohio 43217

Dear Colonel Jones:

On behalf of the Columbus Region business community, let me express our excitement on making the short list of locations for the new KC-46 Tanker. Since the 1940s, Rickenbacker has continuously and capably hosted military aviation operations. Military personnel and their families have found the Columbus Region to be a vibrant home in which to live, work and play. We'd be honored to host the first Air National Guard-led KC-46A main operating base.

Columbus offers the vital support to ensure your Airmen and their families feel welcome, grow and prosper. Rickenbacker's host community, the 15<sup>th</sup> largest city in the U.S., is a vibrant, growing metro area. Two of our strongest economic drivers – healthcare and education – are noted as critical criteria in your review. With four major healthcare systems (including a major children's research hospital and two major cancer treatment centers), Columbus is a regional center for medical care. And with tremendous choice among K-12 education, the largest community college in the region, and 50 colleges/universities and post-secondary institutions, Columbus offers more education options than practically any other metropolitan area. Moreover, with 15 Fortune 1000 companies in the Columbus Region, spousal employment opportunities abound. And finally, with a cost of living that ranks in the top 10 nationally among major metro areas, your personnel will be able to afford the dining, entertainment and cultural options.

We know you will do a detailed analysis of our Region and compare us against other competitors to ensure the best choice for your people, your aircraft and your mission. But as a metropolitan area, you'll find no better, no more sustainable home. As a former AF officer and as one who chose to live and work in Columbus, I promise you'll be well taken care of in Central Ohio. Your KC-46 ANG MOB should be Rickenbacker Air Guard Station.

If you have any questions, please contact me at 614.225.6917.

Sincerely,

A handwritten signature in blue ink, appearing to read "Michael Dalby".

Michael Dalby  
President & CEO





**COLUMBUS REGIONAL AIRPORT AUTHORITY**  
PORT COLUMBUS • RICKENBACKER • BOLTON

January 24, 2013

Colonel James V. Jones  
Commander  
121<sup>st</sup> Air Refueling Wing  
7370 Minuteman Way  
Columbus, Ohio 43217

**Board of Directors**  
Dwight E. Smith  
Chair  
Susan Tomasky  
Vice Chair

Don M. Casto, III  
Frank Cipriano  
William R. Helfner  
John W. Kessler  
Wm. J. Lhota  
Jordan A. Miller, Jr.  
Kathleen H. Ransier

Elaine Roberts, A.A.E.  
President & CEO

Dear Colonel Jones:

On behalf of the Columbus Regional Airport Authority (CRAA) and the Columbus Region business community, allow me to express our enthusiasm on making the short list of locations for the new KC-46 Tanker. The CRAA would be honored to host the first Air National Guard-led KC-46A Main Operating Base. As the Air Force examines candidate bases for the initial fielding of the KC-46A, we want to express our strong support for the Ohio Air National Guard's 121<sup>st</sup> Air Refueling Wing based at Rickenbacker Air Guard Station (AGS).

Since 1941, Rickenbacker has been the backbone for military aviation operations. Lockbourne Air Force Base was home base to the Tuskegee Airmen after World War II. The 332<sup>nd</sup> Fighter Group remained at Lockbourne, now named Rickenbacker Air National Guard Base, until 1949. This rich and unique heritage, which includes a history identified with Columbus-born Eddie Rickenbacker, one of the facilities used to train Members of the WASPS (Women Airforce Service Pilots), and home to the Tuskegee Airmen is not only a central part of the base's identity, but the larger Columbus community's history.

Military personnel and their families have found the Columbus Region to be a vibrant home in which to live, work and play. The military remains extremely active at Rickenbacker. Today the U.S. and Ohio Air National Guard, U.S. Army Reserve and Navy/Marine Reserve units can be found at Rickenbacker. This creates significant economies of scale when these units can be collocated on facilities that include a significant amount of community investment in infrastructure.

The combination of the infrastructure, Central Ohio location, and community associated with the site and the proven performance of the unit, would give this location unique benefit to the Air Force. The Rickenbacker Air Guard Station is well located to provide responsive support to the significant demand for aerial refueling in the eastern United States, particularly the heavy concentration of fighter and cargo aircraft in the southeast states. Rickenbacker AGS is well positioned to accept 12 KC-46A aircraft, with the base's infrastructure currently supporting 18 KC-135R aircraft. Rickenbacker also offers a total logistics platform, all-weather navigation, a Foreign-trade zone, and U.S. Customs and Border Protection on site. CRAA maintains all runways, taxiways and navigational aids.

68-1

Additionally, the facility stands out for its existing infrastructure, offering not just one, but two runways meeting the criteria identified in your sourcing document.

**Port Columbus International Airport**  
4000 International Gateway  
Columbus, Ohio 43219  
Phone: 614-239-4000  
Fax: 614-239-4066

**Rickenbacker International Airport**  
7400 Alum Creek Drive  
Columbus, Ohio 43217  
Phone: 614-491-1301  
Fax: 614-491-0862

**Bolton Field Airport**  
2000 Norton Road  
Columbus, Ohio 43228  
Phone: 614-851-9900  
Fax: 614-851-8959

Page 2 | Rickenbacker KC-46 Tanker

Through our partnerships with counties, cities, townships and the Mid-Ohio Regional Planning Commission, we have been able to leverage public and private investment for Rickenbacker. We have leveraged over \$112 million of investments from the FAA, as well as federal and state grants. We are completing the grant offer and acceptance on a \$16 million TIGER Grant that will facilitate the completion of \$30 million of capital projects (East-West Connector) providing better access to/from Rickenbacker. In total, \$177 million has been invested in capital improvements at Rickenbacker between 2003 and 2012, excluding investments made by the military.

Columbus offers the vital support to ensure your Airmen and their families feel welcome, grow and prosper. Rickenbacker's host community, the 15<sup>th</sup> largest city in the U.S., is a vibrant, growing metro area. The economic impact that Rickenbacker, as well as Port Columbus and Bolton Field airports, have in the Columbus area are quite impressive. Our airports make a considerable contribution to the economy in employment, payroll and economic activity.

**Summary of Economic Impacts [2012 Study by CDM Smith]**

	<b>CRAA's Airports</b>	<b>Rickenbacker Off-Airport Businesses</b>	<b>Total Impacts</b>
<b>Total Jobs</b>	38,374	15,798	54,172
<b>Total Payroll</b>	\$1.3 Billion	\$515.2 Million	\$1.8 Billion
<b>Total Output</b>	\$4.6 Billion	\$1.9 Billion	\$6.6 Billion

The Columbus Region is a test market of the United States because of its diverse economic profile. In addition to the large universities, and having a national logistics hub, it is a center of retail brands such as the Limited Brands and Wendy's and the second home of Chase bank, which happens to be the region's largest employer. With 6 Fortune 500 and 15 Fortune 1000 companies in the Columbus Region, spousal employment opportunities abound. Nearly 190 companies have chosen the Columbus Region to locate and expand since 2011, and the Rickenbacker Global Logistics Park provides up to 29 million square feet of additional development space to complement the 40 million square feet of existing space.

Moreover, Columbus' cost of living ranks in the top 10 nationally among major metro areas, meaning your personnel will be able to afford the dining, entertainment and cultural options of our vibrant city.

Two of our strongest economic drivers – healthcare and education – are noted as critical criteria in your review. The Chalmers P. Wylie VA Ambulatory Care Center is located in Columbus and four VA Clinics are located in the regional area. With four major healthcare systems, including a major children's research hospital and two major cancer treatment centers, Columbus is a regional center for medical care.

In addition, with a tremendous choice among K-12 education, the largest community college in the region, and 50 colleges/universities and post-secondary institutions, Columbus offers more education options than practically any other metropolitan area. Our health care and educational institutions are not only top-rated, but have a history of working together on regional priorities.

Page 3 | Rickenbacker KC-46 Tanker

We know you will do a detailed analysis of our Region and compare us against other competitors to ensure the best choice for your people, your aircraft and your mission. And as a metropolitan area, you'll find no better, no more sustainable and welcoming home. We believe that the proven performance and wealth of experience at the 121<sup>st</sup>, Rickenbacker's outstanding facilities, and the strong local and statewide support enjoyed by the unit make it an ideal location for a KC-46A Main Operating Base. We encourage you to give Rickenbacker AGS every favorable consideration as you make your decision in the months ahead.

68-1  
Cont.

Additional facility information has previously been provided to your staff. However, if you have any additional questions, please contact me at 614-239-4004.

Sincerely,



Elaine Roberts  
President & CEO



**Destination: Canal Winchester**

P.O. Box 45  
Canal Winchester, OH 43110  
Phone: (614) 270-5053  
[www.DestinationCW.org](http://www.DestinationCW.org)

DATE: January 15, 2013

SUBJECT: Letter of Support for 121<sup>st</sup> Air Refueling Wing (Rickenbacker AFB)

Colonel James V. Jones  
121<sup>st</sup> Air Refueling Wing  
7370 Minuteman Way  
Columbus, Ohio 43217

Colonel Jones,

As the Visitor/Tourism Bureau for the city of Canal Winchester, Destination: Canal Winchester wants to go on record that we enthusiastically support any decision to maintain or augment current mission scope and staffing of the 121<sup>st</sup> Air Refueling Wing located at Rickenbacker AFB and we greatly appreciate all efforts toward that end. Our community has developed an integrated relationship with the hard-working men and women of the Rickenbacker Air National Guard base and any significant reduction in staffing there would have an immediate adverse impact on our quality of life. We fully understand that military technology and budgets change over time but locations with high-performing work teams like the 121<sup>st</sup> ARW deserve special consideration for their professionalism and positive effect both on and off base.

Through their patronage, the Rickenbacker team members provide direct economic support to our local small businesses and help draw family and friends into our community who would not otherwise visit Canal Winchester. Without exception, they are outstanding representatives of the country, their uniform, and our community. If the 121<sup>st</sup> ARW must lose mission due to planned retirement of equipment such as the KC-135 aircraft, please give strongest consideration to allowing a proven efficient team to transition into a KC-46A maintenance role so they can continue the outstanding service they provide to their country and surrounding community. Thank you for your time, help, and thoughtful consideration of this community's future!

Sincerely,

**Bruce Jarvis**  
Executive Director, Destination: Canal Winchester  
[info@DestinationCW.org](mailto:info@DestinationCW.org)

*Destination: Canal Winchester is a 501(c)(3) non-profit organization (tax ID: 31-1659678)*





Commissioner Marilyn Brown • Commissioner Paula Brooks • Commissioner John O'Grady  
President

March 26, 2014

KC-46A EIS Project Manager, NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Sir:

The Franklin County, Ohio Board of Commissioners enthusiastically supports the location of the new KC-46A "Pegasus" mission at Rickenbacker Air National Guard Base here in Franklin County, as Rickenbacker is prepared to accept the new role of the main operating base of the KC-46 today.

Rickenbacker offers unique opportunities for local partnerships that would make the location of the KC-46 here a success. The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports, located within miles of each other and providing access to four heavy lift capable runways. The CRAA also governs the Rickenbacker Intermodal, which combines rail head traffic, road traffic and distribution and warehouse facilities into a true Inland Port. This is unparalleled, low-cost, joint-use surge capability that would benefit a KC-46 operation. Teamed with the Defense Logistics Agency, also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force.

Because Columbus is located within an hour's flight – a day's drive – to nearly 60% of the U.S. population, Central Ohio is an ideal departure point for homeland defense and security activities.

Franklin County is the proud home to 1.2 million residents with wonderful natural assets. Our community features 15 Fortune 1000 communities and was recently ranked the #4 metropolitan area in the nation for economic growth by The Business Journals. Our anchor institutions include world-class healthcare systems (including a major children's research hospital and two major cancer treatment centers), the largest private research institution in the world (Battelle) and one of the largest research universities in the world (The Ohio State University). Our vast cultural amenities include #1 rankings for our ballpark, zoo and metropolitan library system, and our cost-of-living ranks in the top 10 nationally among major metro areas.

373 South High Street, 26th Floor, Columbus, Ohio 43215-6314  
Tel: 614-525-3322 Fax: 614-525-5999 [www.FranklinCountyOhio.gov](http://www.FranklinCountyOhio.gov)



Page Two  
KC-46A EIS Project Manager  
March 26, 2014

Franklin County government has long been recognized for its professionally run operations, and is among very few metro counties in the nation that carry a double AAA bond rating, the highest rating available. Our focus on investments in public safety, economic development and environmental sustainability contributes to the great quality of life in Central Ohio.

We thank you in advance for your consideration of Rickenbacker Air National Guard Base as the future home of the KC-46.

Sincerely,



Marilyn Brown, President



Paula Brooks



John O'Grady

The Franklin County Board of Commissioners



Commissioner John O'Grady • Commissioner Paula Brooks • Commissioner Marilyn Brown  
President

January 23, 2013

Colonel James V. Jones  
Commander  
121st Air Refueling Wing  
7370 Minuteman Way  
Columbus, Ohio 43217

Dear Colonel Jones:

The Franklin County Board of Commissioners enthusiastically supports the location of the new KC-46 Tanker at Rickenbacker, and our community would be honored to host the first Air National Guard-led KC-46A main operating base.

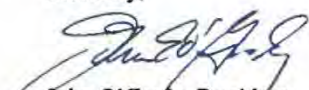
Since the 1940s, Rickenbacker has continuously and capably hosted military aviation operations. Military personnel and their families have found Franklin County to be a supporting community and wonderful place to locate.

Franklin County is the proud home to 1.2 million residents with wonderful natural assets. Our community features 15 Fortune 1000 communities and was recently ranked the #4 metropolitan area in the nation for economic growth by The Business Journals. Our anchor institutions include world-class healthcare systems (including a major children's research hospital and two major cancer treatment centers), the largest private research institution in the world (Battelle) and one of the largest research universities in the world (The Ohio State University). Our vast cultural amenities include #1 rankings for our ballpark, zoo and metropolitan library system, and our cost-of-living ranks in the top 10 nationally among major metro areas.

Franklin County government has long been recognized for its professionally run operations, and is among very few metro counties in the nation that carry a double AAA bond rating, the highest rating available. Our focus on investments in public safety, economic development and environmental sustainability contributes to the great quality of life in Central Ohio.

As you proceed with our analysis, we expect that our region will compare favorably with any in the country, and we look forward to the opportunity to welcome you to our community. Please do not hesitate to call us if you have any questions.

Sincerely,



John O'Grady, President

Franklin County Board of Commissioners



Paula Brooks



Marilyn Brown

373 South High Street, 26th Floor, Columbus, Ohio 43215-6314  
Tel: 614-525-3322 Fax: 614-525-5999 [www.FranklinCountyOhio.gov](http://www.FranklinCountyOhio.gov)

Capitol Building  
Room 241-South  
300 SW 10th Street  
Topeka, KS 66612



Phone: (785) 296-3232  
Fax: (785) 368-8788  
governor.ks.gov

Sam Brownback, Governor

March 18, 2014

KC-46A EIS Program Manager  
NGB/A7AM  
Shepperd Hall, 3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Sir/Madam,

We are extremely proud that Forbes Field Air National Guard Base (ANGS)/190<sup>th</sup> Air Refueling Wing (ARW) is one of five ANGSS being considered to become the first Air National Guard Main Operating Base (MOB2) for the KC-46A mission. As proud as we are of this consideration, we in Kansas are just as proud of the 190<sup>th</sup>'s successful history of operating air refueling aircraft in support of military and national security missions.

Clearly an Active Association such as the one currently existing at Pease Air National Guard Base is an important factor in determining where the Air Force should beddown the KC-46A for the MOB2 mission site. The State of Kansas looks forward to working with the 190<sup>th</sup> ARW, the Air National Guard and Headquarters, US Air Force, to establish an Active Association at Forbes Field in Topeka, Kansas.

While we certainly respect and support the United States Air Force's (USAF) decision selecting Pease ANGSS, we firmly believe that Forbes continues to be a top candidate and an excellent choice for a future KC-46A Active Association and associated mission during the next round of basing decisions for the KC-46A.

I also want you to know that Forbes Field Air National Guard Base and the 190<sup>th</sup> ARW have enjoyed, and will continue to enjoy, strong state and community engagement and support. I pledge on behalf of the citizens of Kansas that we will not only assist the 190<sup>th</sup> ARW in its efficient and cost effective accomplishment of its air refueling mission, but also in improving the quality of life of its airmen and their families.

Sincerely,

Sam Brownback  
Governor

CC:

Honorable Debbie Lee James - Secretary of the Air Force

Ms. Kathleen Ferguson – Assistant Secretary (Acting), Assistant Secretary for Installations, Environment and Logistics

Lieutenant General Stanley E. "Sid" Clarke - Director, Air National Guard Bureau





City of Canal Winchester  
36 South High Street  
Canal Winchester, Ohio 43110-1213

January 23, 2013

Colonel James V. Jones  
Commander  
121st Air Refueling Wing  
7370 Minuteman Way  
Columbus, Ohio 43217

Dear Colonel Jones:

On behalf of the Canal Winchester community, let me express our congratulations on making the short list of locations for the new KC-46A Tanker. Since the 1940s, Rickenbacker has continuously and capably hosted military aviation operations. Military personnel and their families have found the Columbus Region to be a vibrant home in which to live, work and play. We'd be honored to host the first Air National Guard-led KC-46A main operating base.

With Canal Winchester's close proximity to Rickenbacker, it makes it easy for your Airmen to enjoy dining and shopping during their lunchtime; as well as partake in family friendly events and festivals throughout the entire year. Canal Winchester offers your Airmen and their families a place for healthcare needs with our new Diley Ridge Medical Center. This medical campus currently includes a medical office building with family and specialty physicians, Nationwide Children's Urgent Care Center and an Emergency Room. This campus is proposed to expand to several more office buildings and a two hundred bed hospital in the next several years. With all these amenities within a short distance to Rickenbacker Air Base, Airmen and their families have found Canal Winchester to be a welcoming area where they want to raise their families and be a part of the community.

We know you will do a detailed analysis of our Region and compare us against other competitors to ensure the best choice for your people, your aircraft and your mission. We feel that as community, you'll find no better or more sustainable home than the Rickenbacker Air Guard Station, and we hope that you will come to the same conclusion.

If you have any questions, please contact me at 614.837.7493.

Sincerely,

A handwritten signature in blue ink, which appears to read 'Michael Ebert', is written over a horizontal line.

Michael Ebert  
Mayor

Office: (614) 837-7493

Fax: (614) 837-0145



Mid-Ohio Regional Planning Commission

March 24, 2014

KC-46A EIS Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Subject: KC-46A Pegasus Mission

Dear KC-46A EIS Project Manager:

111 Liberty Street  
Suite 100  
Columbus, Ohio 43215  
T 614.228.2663  
F 614.228.1904  
TTY 1.800.750.0750  
www.morpc.org

The Mid-Ohio Regional Planning Commission (MORPC) supports bringing the KC-46A "Pegasus" to Rickenbacker Air National Guard Base in Columbus, Ohio. Rickenbacker is prepared today to accept the new role of the main operating base of the KC-46A.

The Columbus Regional Airport Authority (CRAA) governs both Rickenbacker and Columbus International Airports. The two airports are located within miles of each other and provide access to four heavy lift capable runways. The CRAA also governs the Rickenbacker Intermodal that combines rail head traffic, road traffic, and distribution and warehouse facilities into a true "In Land Port". This is an unparalleled low-cost joint use surge capability that would benefit a KC-46 operation.

In addition, the Defense Logistics Agency is also located in Columbus (by the airport), and the 121 Air Refueling Wing can be a key partner in the cargo delivery for the Air Force. Columbus is the ideal departure point for homeland defense and security as a one hour flight time can reach 60 percent of the US population. As a result, long-haul worldwide carriers are already utilizing this airport.

The Mid-Ohio Regional Planning Commission (MORPC) is a voluntary association of over 50 local governments from the Central Ohio Area. MORPC provides services in transportation, planning, energy, housing, land use, environment, and economic prosperity to promote sustainable communities. MORPC serves as a collective voice on regional matters and supports the opportunities to expand services at Rickenbacker Air National Guard Base

Columbus is the 15<sup>th</sup> largest city and rated the 11<sup>th</sup> most military friendly city in America. The city was recently awarded an Employer Support of the Guard and Reserve award. The Columbus Region is one of the most dynamic and diverse metropolitan regions in the U.S. and is known for its top-ranked market access, talented workforce and high-value cost of doing business.

Therefore, MORPC highly supports bringing the KC-46 to Rickenbacker.

Kind regards,

A handwritten signature in blue ink, appearing to read "William Murdock", is written over a light blue and green wavy background graphic.

William Murdock  
Executive Director

Marilyn Brown  
Chair

Eric S. Phillips  
Vice Chair

Matt Greeson  
Secretary

William Murdock, AICP  
Executive Director



The State of New Hampshire  
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner



March 20, 2014

Ms. Anne Rowe  
KC-46A MOB2 Project Manager  
NGB/A7AM  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

**RE: NHDES COMMENTS – NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS), PORTSMOUTH, NEW HAMPSHIRE – FEBRUARY 2014**

Dear Ms. Rowe:

The New Hampshire Department of Environmental Services (NH DES) has completed its review of the subject DEIS. NH DES provided comments to you on October 16, 2013 relative to potential environmental issues that needed to be addressed for the NEPA analysis, based on facts and plans presented in draft chapters one and two of the DEIS, dated September 2013. Topics considered included storm water management, wetland impacts, erosion control, aboveground petroleum management systems and air emissions modeling.

As a result of the review of the full DEIS, dated February 2014, the NH DES has no further comments at this time on the KC-46A proposal for the Pease ANGS. Instead, please accept our prior comments, dated October 16, 2013, as final for the full DEIS. I have enclosed with this letter copies of our October 16, 2013 comments for your reference. NH DES also attended the public hearing for the project on March 6, 2014 at the Portsmouth (NH) City Hall.

DES would like to thank you for the opportunity to comment on the DEIS. It is our intent to continue to serve as a partner in your effort to evaluate the Pease ANGS in Portsmouth, New Hampshire as a second main operating base (MOB 2) for the KC-46A beddown facility. If there are questions, please contact me as needed.

Sincerely,

Timothy W. Drew  
Administrator  
Public Information & Permitting  
Office of the Commissioner

Encs.

Cc: Thomas S. Burack, Commissioner, NH DES  
Vicki V. Quiram, Assistant Commissioner, NH DES  
Harry T. Stewart, Director, Water Division, NH DES  
Michael Wimsatt, Director, Waste Management Division, NH DES  
Craig Wright, Director, Air Resources Division, NH DES  
Jeffrey Andrews, Water Division, NH DES  
Ridgely Mauck, Water Division, NH DES  
Robert Daniel, Waste Management Division, NH DES  
Felice Janelle, Air Resources Division, NH DES

DES Web site: [www.des.nh.gov](http://www.des.nh.gov)

P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095

Telephone: (603) 271-3503 • Fax: (603) 271-2867 • TDD Access: Relay NH 1-800-735-2964





The State of New Hampshire  
DEPARTMENT OF ENVIRONMENTAL SERVICES

Thomas S. Burack, Commissioner



October 16, 2013

Ms. Anne Rowe  
KC-46A MOB2 Project Manager  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

**RE: NHDES COMMENTS – DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS), PORTSMOUTH, NEW HAMPSHIRE – SEPTEMBER 2013**

Dear Ms. Rowe:

The New Hampshire Department of Environmental Services (DES) has completed its review of the subject chapters and provides the enclosed comments for your consideration. The initial drafts of chapters one and two represented the focus of the agency's review. Topics addressed included storm water management, aboveground petroleum management systems and air emissions modeling.

DES would like to thank you for the opportunity to comment on the early stages of the DEIS. It is our intent to continue to serve as a partner in your effort to evaluate the Pease ANGS in Portsmouth, New Hampshire as a beddown site for the KC-46As. If there are questions, please contact me as needed.

Sincerely,

Timothy W. Drew  
Administrator  
Public Information & Permitting  
Office of the Commissioner

Enc.

Cc: Thomas S. Burack, Commissioner, NH DES  
Vicki V. Quiram, Assistant Commissioner, NH DES  
Harry T. Stewart, Director, Water Division, NH DES  
Michael Wimsatt, Director, Waste Management Division, NH DES  
Craig Wright, Director, Air Resources Division, NH DES  
Jeffrey Andrews, Water Division, NH DES  
Gregg Comstock, Water Division, NH DES  
Michael Juranty, Waste Management Division, NH DES  
Michael Fitzgerald, Air Resources Division, NH DES  
Thomas P. Ballesterio, Director, Storm Water Center, UNH, Durham NH

DES Web site: [www.des.nh.gov](http://www.des.nh.gov)

P.O. Box 95, 29 Hazen Drive, Concord, New Hampshire 03302-0095

Telephone: (603) 271-3503 • Fax: (603) 271-2867 • TDD Access: Relay NH 1-800-735-2964



**DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT  
STATEMENT (DEIS) – KC-46A BEDDOWN (MOB2) – PEASE AIR NATIONAL  
GUARD STATION (ANGS), PORTSMOUTH, NEW HAMPSHIRE – SEPTEMBER 2013**

**NH DES COMMENTS**

October 16, 2013

**Comment 1. Storm Water Management**

Based on the figures in Table 2.3 (total disturbance 117,173 square feet and total new impervious surface 26,865 square feet), the Air National Guard Station (ANGS) will need both the U.S. Environmental Protection Agency (U.S. EPA) Construction General Permit (<http://des.nh.gov/organization/divisions/water/stormwater/construction.htm>) and an NH DES Alteration of Terrain Permit ([http://des.nh.gov/organization/divisions/water/aot/permit\\_aot.htm](http://des.nh.gov/organization/divisions/water/aot/permit_aot.htm)). If the project includes construction dewatering, the ANGS may also need either the Dewatering General Permit (DGP - see <http://www.epa.gov/region1/npdes/dewatering.html>) or the Remediation General Permit (RGP - see <http://www.epa.gov/region1/npdes/rgp.html>), which are typically required for dewatering groundwater containing contaminants. ANGS would not need to address U.S. EPA Municipal Separate Storm Sewer System General Permit (MS4 GP) requirements since Newington is not an MS4, but would need to meet any applicable requirements in the Pease Tradeport's individual National Pollutant Discharge Elimination System Permit (NH0090000) that contains conditions on several storm water outfalls (see attached NPDES Permit).

This additional impervious surface will create the potential for additional pollutant loads to be discharged to the impaired waters in the vicinity, including Great Bay. NH DES suggests that the ANGS's goal should be "hold the loads" for any pollutants for which nearby waters are impaired. This could mean deploying structural Best Management Practices such as the University of New Hampshire's subsurface gravel wetlands or a bioretention hybrid (internal storage volume). If this is considered a federal site or construction project, the ANGS would also need to comply with the storm water management requirements of Section 438 of the

**DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A  
BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS)  
PORTSMOUTH, NEW HAMPSHIRE- SEPTEMBER 2013**

**NH DES Comments**  
October 16, 2013  
Page 1 of 3



Energy Independence and Security Act (see <http://water.epa.gov/polwaste/nps/section438.cfm>). Information on subsurface gravel wetlands can be found in the UNH Stormwater Center's annual report (see <http://unh.edu/unhsc/sites/unh.edu.unhsc/files/docs/UNHSC.2012Report.10.10.12.pdf>) or by contacting the Center (see <http://www.unh.edu/unhsc/contact>). For information on the bioretention hybrids, which are a fairly recent design, however some exist presently in seacoast New Hampshire, contact Dr. Thomas Ballesterio by telephone at (603) 862-1405 or by email at [tom.ballesterio@unh.edu](mailto:tom.ballesterio@unh.edu).

### **Comment 2. Petroleum Management**

The proposed project for modifying the refueling hydrants and lines would be regulated by the NH DES Aboveground Storage Tank (AST) Program (<http://des.nh.gov/organization/divisions/waste/orcb/ocs/astp/index.htm>). This project is detailed on page 2-32 "Project #7", shown on page 2-33 of the DEIS, and discussed at the top of page 2-36. The New Hampshire Air National Guard, Civil Engineering Squadron, is aware of the NH DES AST Program requirements and has been in preliminary contact with Bob Daniel in the Plan Review Subsection to discuss the scope of future improvements. The AST Program welcomes the proposed modifications that would add interstitial monitoring and secondary containment to the hydrants and lines.

### **Comment 3. Air Emissions Analysis**

Based on the NH DES Air Resources Division's (ARD) review of the above referenced project description, we concur that the project is compatible with the plans, programs, and objectives of ARD, and that the project should have no significant environmental impact to local or regional air quality.

ARD conducted modeling to determine potential air emissions, based on the type of aircraft to be used and the number of sorties as noted in the description of the proposed action using the FAA's Emission and Dispersion Modeling System (EDMS). Results are shown below:

#### **Pease Air National Guard Base**

*Emissions for KC-135 vs. Proposed KC-46As*

Aircraft Scenario	Emissions in Tons Per Year				
	CO	NOx	PM	SOx	VOC
KC-135R, CFM56-2A engines, 10,204 sorties	259.9	392.9	4.2	36.9	21.1
KC-46A, PW4062 engines, 12,799 sorties	467.4	359.1	5.6	30.9	139.9
Difference	207.4	-33.8	1.4	-6.1	118.8
Rockingham county total, tons per year*	50,578	8,235	8,458	3,577	7,939

DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A  
BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS)  
PORTSMOUTH, NEW HAMPSHIRE- SEPTEMBER 2013

NH DES Comments  
October 16, 2013  
Page 2 of 3

% change in Rockingham county emissions with KC-46A aircraft and 2,595 additional sorties      0.41%    -0.41%    0.02%    -0.17%    1.50%

Notes:

- 1) Emissions were estimated with EDMS 5.1.4.1
  - 2) A Boeing 767-200ER with PW4062 engines was used to represent the KC-46A
  - 3) A sortie was considered equal to a complete landing-takeoff operation (LTO)
- \* National Emissions Inventory reporting for 2011

As shown, emissions for oxides of nitrogen and sulfate (NO<sub>x</sub> and SO<sub>x</sub>) are expected to decrease, while carbon monoxide (CO), particulate matter (PM) and volatile organic compounds (VOC) emission will increase. However, based on their contribution to area-wide emissions, those originating from aircraft are not expected to have a significant impact on area air quality or attainment status.

During proposed construction activities, we advise that appropriate measures be taken to limit emissions from diesel fueled vehicles. These measures include, but are not limited to:

- Preventing, abating and controlling fugitive dust;
- Limiting idling of construction vehicles.

Potential traffic related impacts due to construction vehicles will be evaluated via the Interagency Consultation Process as outlined in the federal Clean Air Act.

###

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DRAFT CHAPTERS 1 & 2 - NEPA DRAFT ENVIRONMENTAL IMPACT STATEMENT (DEIS) – KC-46A  
BEDDOWN (MOB2) – PEASE AIR NATIONAL GUARD STATION (ANGS)  
PORTSMOUTH, NEW HAMPSHIRE- SEPTEMBER 2013

NH DES Comments  
October 16, 2013  
Page 3 of 3



State of New Jersey  
DEPARTMENT OF ENVIRONMENTAL PROTECTION  
OFFICE OF PERMIT COORDINATION AND ENVIRONMENTAL REVIEW  
P.O. Box 420 Mail Code 401-07J Trenton, New Jersey 08625-0420  
Phone Number (609) 292-3600  
FAX NUMBER (609) 292-1921

CHRIS CHRISTIE  
Governor

BOB MARTIN  
Commissioner

KIM GUADAGNO  
Lt. Governor

March 24, 2014

Ms. Anne Rowe  
Plans and Requirements Branch  
NGB/A7AM  
Sheppard Hall  
3501 fetchet Avenue  
Joint Base Andrews, MD 20762-5157

**RE: Second Main Operating Base KC-46A Beddown at  
Alternative Air National Guard Installation -  
Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey**

**Comments on the Draft Environmental Impact Statement (EIS)**

Dear Ms. Rowe:

The New Jersey Department of Environmental Protection's (Department) Office of Permit Coordination and Environmental Review (PCER) distributed the Draft Environmental Impact Statement (EIS) for the proposed Second Main Operating Base KC-46A Beddown at an Alternative Air National Guard Installation Joint Base McGuire-Dix-Lakehurst (JB MDL) in New Jersey. We offer the following comments for your consideration.

**Cultural Resources**

HPO Project# 13-1101-3  
HPO-C2014-022

The Historic Preservation Office (HPO) received the above document for review directly from the National Guard Bureau. As stated in the EIS document, the HPO previously reviewed the proposed undertaking pursuant to Section 106 of the National Historic Preservation Act. Our office concurred with the finding that there are no historic properties affected by the proposed

76-1

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activity at Joint Base McGuire-Dix-Lakehurst. A copy of our review letter (HPO-J2013-045) is attached for your reference.

Thank you for providing us with the opportunity for review and comment on the submitted documentation. If you have any questions, please do not hesitate to contact me. If additional consultation is required for this undertaking, please reference the HPO project# 13-1101 in any future calls, emails, or written correspondence in order to expedite our review and response.

76-1  
Cont.

Jonathan Kinney, Senior Historic Preservation Specialist  
New Jersey Historic Preservation Office  
Phone: (609) 984-0141 Fax: (609) 984-0578  
Email: [jonathan.kinney@dep.state.nj.us](mailto:jonathan.kinney@dep.state.nj.us)  
Website: <http://www.nj.gov/dep/hpo>

#### Natural Resources

The NJ Division of Fish & Wildlife (DFW) appreciates the opportunity to provide comment for the Environmental Impact Statements (EIS's) being prepared for the MOB 1/FTU1 and MOB 2 aircraft beddowns. The NJ DFW feels that the proposed facility additions, new impervious surface areas and changes to the existing fueling infrastructure shown in the "Final Description of the Proposed Action and Alternatives Environmental Impact Statement KC-46A Beddown at Alternative Air National Guard Installations Main Operating Base 2" should have little to no effect on the known nesting area of the Upland Sandpipers, Grasshopper Sparrows and Savannah Sparrows near the center of the runways at McGuire AFB.

76-2

In the EIS, a description of other larger aircraft with similar engines using the same runways would be helpful in determining whether or not the replacement of the existing KC-135 aerial refueling fleet with the KC-46A would have any effect on the T&E species present.

76-3

As shown in Table ES-2. Summary of Impacts, under "JB MDL": "Acreage within the 65 dB DNL (and greater) noise contour would increase by 1,831 acres." The DFW would like to know what the noise level is now and exactly what the change in noise level would be. A study by Erin H. Strasser and Julie A. Heath, *Reproductive failure of a human-tolerant species, the American kestrel, is associated with stress and human disturbance*, suggests that "cavity nesting birds, such as kestrels, who inhabit noisy environments may compensate for decreased auditory cues by increasing vigilance behavior, such as visual scans from the nest entrance or flushing from the nest, leading to changes in energy allocation or extended periods away from the nest during incubation. This behavior appears to be followed, at a high rate, by nest abandonment." The DFW would be concerned with how this may relate to the species nesting within the air field.

76-4

If we may be of further service, please contact Kelly Davis at (908) 236-2118 or by Email at [kelly.davis@dep.state.nj.us](mailto:kelly.davis@dep.state.nj.us)

**Air Quality**

The Bureau of Air Quality Planning has reviewed the US Air Force JBMDL Draft EA for KC-46A beddown and has no comment.

Thank you for giving the New Jersey Department of Environmental Protection the opportunity to comment on the draft EIS. If you have any additional questions, please do not hesitate to call me at (609) 292-3600.

Sincerely,

A handwritten signature in black ink, appearing to read 'Ruth Foster', written over a horizontal line.

Ruth Foster, Section Chief  
Office of Permit Coordination  
and Environmental Review

**Attachment**

C: John Gray, NJDEP – PCER  
Jonathan Kinney, NJDEP – HPO  
Kelly Davis, NJDEP – DFW  
Angela Skowronek, NJDEP - BAQP





NATIONAL GUARD BUREAU

3501 FETCHET AVENUE  
JOINT BASE ANDREWS MD 20762-5157

NGB/A7AM

Mr. Daniel Saunders  
New Jersey Department of Environmental Protection  
Historic Preservation Office  
PO Box 420  
Trenton, NJ 08625-420

Dear Mr. Saunders

The United States Air Force (USAF) plans to replace the existing KC-135 air refueling fleet with the KC-46A, which will be a new aircraft to the USAF's fleet. As such, the USAF has identified locations for the beddown of a formal training unit (FTU) and the first main operating base (MOB 1), which will both be led by active duty units. The USAF will also beddown the KC-46A at the second main operating base (MOB 2), which will be led by an Air National Guard (ANG) unit.

There are two separate Environmental Impact Statements (EISs) being prepared for the MOB 1/FTU<sup>1</sup> and MOB 2 beddowns. While you may be familiar with either or both of these actions, this particular letter is in reference only to the MOB 2 beddown action. This correspondence is provided to initiate consultation with your office, pursuant to 36 Code of Federal Regulations (CFR) 800.3 for the Undertaking. Section 106 consultation for this project will be parallel to, but conducted separately from the EIS.

The MOB 2 alternative locations for this beddown include:

- Forbes Air National Guard Station (ANGS), Kansas;
- Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Pease ANGS, New Hampshire;
- Pittsburgh ANGS, Pennsylvania; and,
- Rickenbacker ANGS, Ohio.

The EIS is being prepared under the National Environmental Policy Act (NEPA) for the potential beddown of the KC-46A at one of the five alternative locations, including JB MDL in New Jersey (Attachment 1). The EIS will assess the potential environmental consequences associated with the beddown of the KC-46A at JB MDL as a replacement to the KC-135. As a result of the Proposed Action, there would be a change to the type of aircraft based at the

<sup>1</sup> The FTU alternative installations include Altus Air Force Base (AFB), Oklahoma and McConnell AFB, Kansas. The MOB 1 alternative installations include Altus AFB, Oklahoma; McConnell AFB, Kansas; Fairchild AFB, Washington; and Grand Forks AFB, North Dakota.

HPO- J2013-045

13-1101-29K

12 September 2013

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HISTORIC PRESERVATION OFFICE

HPO Project # 13-1101-2  
HPO-J2013-045

Page 2

selected installation; a change to the mix of aircraft using the associated airspace; changes to staffing and manpower at the selected location; changes to the number of airfield operations; as well as minor required construction, building renovation, and facility demolition. There would be no new or modified airspace required to support this undertaking.

At JB MDL, the KC-46A would replace the KC-135 currently based at the installation. The KC-46A would operate in existing airspace in a similar manner as is currently conducted. There may be a slight increase in operations in the airspace; however, use of this airspace is generally 10,000 feet above ground level and higher and preliminary analysis indicates that noise levels under the proposal would be similar to existing noise levels with the KC-135 aircraft. The purpose of this correspondence is to initiate the Section 106 process of the National Historic Preservation Act (NHPA) as outlined in 36 CFR 800.3.

The National Guard Bureau (NGB) anticipates the area of potential effect (APE) for this undertaking to be limited to the portion of the installation where construction, demolition, and renovation activities would occur (Attachment 2). Specifically, these activities would include an addition to Hangar 3333, an addition to Hangar 3336, interior renovations to Hangar 3332, construction of a new 6,700 square foot simulator building west of Building 3390, modifications/additions to the existing aircraft ramp and taxiway, and the addition of eight new fuel hydrants and associated fuel lines on the aircraft parking apron.

The entire McGuire AFB and associated off-base facilities have been surveyed for archaeological resources (Headquarters Air Mobility Command [HQ AMC] 1995). The 1995 survey also included an architectural survey of all buildings and structures built prior to 1947, and the Semi-Automatic Ground Environmental (SAGE) complex built in 1956. As a result of this survey and follow up surveys conducted in 1996 (AMC 1996, Holmes 1996), 1997 (Holmes *et al.* 1997, McGuire AFB 2003), and 1998 (Holmes and Goar 1998), the SAGE complex, the Boeing Michigan Aeronautical Research Center (BOMARC) complex at Fort Dix, and three historic archaeological sites were recommended eligible for inclusion in the National Register of Historic Places (NRHP). No other buildings or sites were recommended eligible. The cultural resources recommended eligible for the NRHP at McGuire AFB are all well outside the proposed APE for the undertaking. Additionally, according to the McGuire AFB Integrated Cultural Resources Management Plan (JB MDL 2013) the proposed APE occurs in an area of low archaeological sensitivity.

The NGB has identified no potential adverse effects as a result of this undertaking. We request your concurrence with the proposed APE, our identification of historic properties, and our assessment on the effects of this proposal on historic properties.

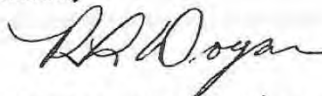
HPO Project # 13-1101-2  
HPO-J2013-045

Page 3

We have attached the Draft Description of the Proposed Action and Alternatives (Attachment 3), which will become the first chapters of the Draft EIS so that you may review the proposal and provide us any concerns that you may have regarding the proposal. Upon release of the Draft EIS (expected in early 2014), we will send that to you for your further review and comment.

The NGB is in the process of consulting with federally recognized American Indian Tribes concerning the Undertaking (Attachment 4). We are also contacting the public and relevant regional Archaeological Society offices both through the NEPA process and through Section 106 of the NHPA. All comments we receive, and any concerns expressed to the NGB, will be taken into consideration while planning for this undertaking. Please send your recommendations to the KC-46A MOB 2 Project Manager, Ms. Anne Rowe, at [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil). If you have any questions regarding this consultation, Ms. Rowe can also be reached at (240) 612-8636.

Sincerely



ROBERT L. DOGAN, REM, GS-13  
Plans and Requirements Branch

Attachments: 1 – Vicinity map  
2 – Map of Area of Potential Effect  
3 – Draft Description of the Proposed Action and Alternatives  
4 – Federally Recognized Tribes associated with JB MDL

References:

Air Mobility Command (AMC)  
1996 *Inventory of Cold War Properties*. December 1996.

Headquarters Air Mobility Command (HQ AMC)  
1995 *An Archaeological and Historical Resources Inventory of McGuire Air Force Base, New Jersey*. Prepared by Moeller, K.L., D.A. Walitschek, M. Greby, and J.F. Hoffecker of the Argonne National Laboratory for McGuire AFB.

Holmes, Richard D.  
1996 *Phase II Testing of Four Historic Sites McGuire Air Force Base Burlington County, New Jersey*. April 1996. Prepared by Mariah Associates, Inc., Albuquerque, New Mexico and Lyndhurst, New Jersey. Prepared for US Air Force/Air Mobility Command, Scott Air Force Base, Illinois.



HPO Project # 13-1101-2  
HPO-12013-045

Page 4

Holmes, Richard D., Toni R. Goar, and Katherine J. Roxlau

1997 *Phase I Archaeological Survey of Areas 4100 and 4200 McGuire Air Force Base, New Hanover Township, Burlington County, New Jersey.* November 1997. Prepared by TRC Mariah Associates, Inc. Prepared for US Army Corps of Engineers New York District and US Air Force/Air Mobility Command Scott Air Force Base, Illinois.

Holmes, Richard D. and Toni R. Goar

1998 *Phase II Site Testing of Four Historic Site McGuire Air Force Base Burlington County, New Jersey.* January 1998. Prepared by TRC Mariah Associates, Inc. Prepared for US Air Force/Air Mobility Command, Scott Air Force Base.

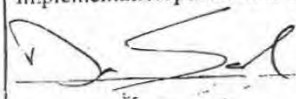
Joint Base McGuire-Dix-Lakehurst (JB MDL)

2013 *Draft Integrated Cultural Resources Management Plan.* 87 CES/CEAN, JB MDL, New Jersey. January 2013.

McGuire Air Force Base (AFB)

2003 *Final Integrated Cultural Resources Management Plan.* Prepared 2003. Updated July 2005.

I concur with your finding that there are no historic properties affected within the project's area of potential effects. Consequently, pursuant to 36 CFR 800.4(d)(1), no further Section 106 consultation is required unless additional resources are discovered during project implementation pursuant to 36 CFR 800.13.



10/3/13

Date

Deputy State Historic Preservation Officer  
DANIEL D. SAUNDERS



Administration  
Office 1-800-282-0515

30 E. Broad Street, 17<sup>th</sup>  
Columbus, Ohio 43215  
[www.OhioAttorneyGeneral.gov](http://www.OhioAttorneyGeneral.gov)

March 24, 2014

KC-46A EIS Project Manager, NGB/A7AM  
Shepperd Hall  
3501 Fetchet Ave.  
Joint Base Andrews, MD 20762-5157

Dear Project Manager:

I am writing in support of locating the KC-46A “Pegasus” refueling squadron at Rickenbacker Air National Guard Base.

Rickenbacker Air National Guard Base has a proud and storied history dating to 1942. Located in Lockbourne, Ohio, only twelve miles from downtown Columbus, Rickenbacker Air National Guard Base is well-equipped to handle the next generation of air refueling tankers. With an excellent infrastructure, including long runways and first-rate maintenance facilities, Rickenbacker Air National Guard Base would make a superb location in which to beddown the second main operating base of KC-46A aircraft.

As you know, Rickenbacker Air National Guard Base is currently home to the 121st Air Refueling Wing, an outstanding unit of professional men and women who understand the critical mission of aerial refueling. Their knowledge, experience, and expertise would greatly contribute to a seamless beddown of the KC-46A aircraft at Rickenbacker Air National Guard Base.

Finally, Rickenbacker Air National Guard Base and the men and women who carry out its operations are strongly supported by local and state business, community, and political leaders. In fact, according to G.I. Jobs magazine, Columbus is the 11th most military friendly city in the country.

I strongly urge you to locate the second main operating base of KC-46A aircraft at Rickenbacker Air National Guard Base. Thank you for your consideration.

Very respectfully yours,

Mike DeWine  
Ohio Attorney General

**Commissioners:**  
Jay H. Wippel  
Brian S. Stewart  
Harold R. Henson

**Administrator:**  
Brad Lutz  
**Clerk:**  
Patricia Webb

*Pickaway County*  
**Board of County Commissioners**  
139 West Franklin Street  
Circleville, Ohio 43113  
Telephone: 740-474-6093 FAX: 740-474-8988

January 22, 2013

Colonel James V. Jones  
Commander  
121st Air Refueling Wing  
2000 Minuteman Way  
Columbus, OH 43217

Dear Colonel Jones:

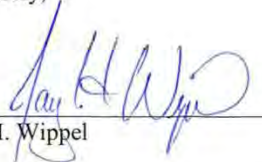
The Pickaway County Board of Commissioners is very pleased that Rickenbacker Air Guard Station has made the short list of locations for the new KC-46A Tanker. Pickaway County is proud to be home to a portion of this airbase, and to be home to military families who serve there. With this in mind, we join many others in the region to express our hope that Rickenbacker will be chosen to host the first Air National Guard-led KC-46A main operating base.

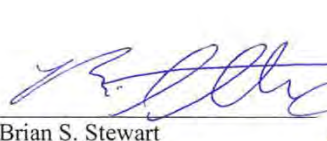
Pickaway County and the Columbus region offer the vital support which will ensure your Airmen and their families feel welcome, and can prosper. Columbus is the 15<sup>th</sup> largest city in the U.S., and a vibrant, growing metro area. Pickaway County, a neighbor to the south, also has much to offer. We are home to four thriving local school districts which consistently rank high in state rankings. The county has a strong agricultural base which has helped our economy through difficult years, as well as a manufacturing industry that is growing and adapting to meet the needs of the 21<sup>st</sup> century. Quality of life is high in Pickaway County, with many safe, attractive communities to choose from, and much to offer your service members.

As you continue your analysis of different options, comparing our region against other potential sites, we know that you are seeking the best choice for your people, your aircraft, and your mission. We feel confident that at Rickenbacker, Columbus, and Pickaway County, each of these will be well taken care of. We hope your KC-46 ANG MOB will be Rickenbacker Air Guard Station.

If the Pickaway County Board of Commissioner can be of any assistance, please do not hesitate to contact us. Thank you for your service, and best wishes on the mission ahead.

Sincerely,

  
Jay H. Wippel

  
Brian S. Stewart

  
Harold R. Henson

## Great Bay Neurosurgical Associates

Central Commons - Suite H  
750 Central Avenue  
Dover, New Hampshire 03820

(603) 749-0888 • (603) 433-1913 • Fax: (603) 749-9285

**Melvin E. Prostkoff, M.D.**

*Diplomate of The American Board of Neurological Surgery*

To: KC-46A EIS Project Manager  
NGB / A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Re: Draft Environmental Impact Study (EIS)  
KC-46A Beddown  
Comment Letter in Support of Pease ANG Station, NH

Date: March 21, 2014

Dear Sir or Madam:

I am writing in support of the selection of Pease ANG Station, NH to be the Second Main Operating Base (MOB 2) for the Beddown of the KC-46A Refueling Aircraft at an Air National Guard Installation.

I have familiarized myself with the content of the February 2014 Draft Environmental Impact Statement (Volumes I and II – Appendices, and the Executive Summary).

I strongly believe that the 157 Air Refueling Wing (ARW) of the NH Air National Guard (ANG) at Pease ANG Station, NH really is the “best of the best” of the five alternative ANG locations for the KC-46A Beddown. I am pleased that the USAF has identified Pease ANG, NH as the preferred alternative for the MOB 2 KC-46A Beddown, based on its operational analysis, results of site surveys, and military judgment factors, as is stated on page ES-8 of the Executive Summary.

I commend the Department of Defense, and their contractor, Cardno Tec (Boise, ID), for their extensive environmental impact statement (EIS) analysis, on multiple criteria, including noise, air quality and pollution, safety and security, soils and water, biological resources, cultural resources, land use, archaeology, infrastructure, transportation and traffic, hazardous materials and waste, socioeconomic, and environmental justice and the protection of children. It is no surprise to me that Pease ANG, NH has registered with negligible environmental impacts in all the areas studied.

Professionals with far more expertise than I have addressed these specific criteria in their comments to you.

You have heard from other commenters about the NH ANG's outstanding record of awards, citations, recognitions, and commendations, including eleven USAF Outstanding Unit Awards (most recently in 2013), the Spatz Trophy, the Outstanding Tanker Flying Squadron, the Air Reserve Force of the Year, and the winner of the ANG Rodeo. Its senior leaders are progressive, proactive and forward thinking. It is their vision, over the years, that led to the creation of the Northeast Tanker Task Force, the “Air Bridge,” the upgrade or new construction of all facilities at Pease ANG, the building of the full-motion KC-135R simulator building with the easy expansion capability to house the KC-46A full-motion simulator, the construction of the new Squadron Operations Facility, runway, taxiway and ramp improvements, and other infrastructure upgrades at Pease ANG. They welcomed the 64 Air Refueling Squadron (ARS) Active Associate group to Pease in 2009 in a seamless transition of all phases of operation. They have become a model unit of ANG and Active Duty integration. They started preparing for the arrival of the KC-46A long before the aircraft was ever planned.

The 157 ARW has distinguished itself in many other ANG activities. Its Operations and Maintenance Support Groups are exceptional. They have successfully rehabbed and modernized KC-135R refueling aircraft that came to them from the Active Duty Air Force. They have been leaders in the Pacer CRAG glass cockpit conversion for many ANG aircraft from other states. They have a training center for personnel from other units to use the full motion KC-135R simulator, and will do the same for the KC-46A simulator, when it is installed. They excel in their Homeland Security mission, and after the 9/11/2001 attacks, performed superbly in their Combat Air Patrols (CAP) over Boston, NY, and the District of Columbia. Their performance has been admirable in support of NATO Operation Deny Flight, Desert Shield, Operation Iraqi Freedom (OIF), Operation Enduring Freedom (OEF), Operation Northern Watch, and other missions.

Domestically, the NH ANG members are true Citizen Soldiers, who, when under the command and authority of the Governor of NH, distinguish themselves in their assistance to the citizens of NH in floods, snow and ice storms, hurricanes, and other natural disasters. They also participated in the Hurricane Katrina relief activities.

I have never been an employee of the NH Air National Guard or the 157 ARW at Pease ANG, NH. I have, however, interacted with the NH ANG on multiple occasions, in multiple capacities, since I moved to the Seacoast region to open my Neurosurgical practice in January, 1984.

My initial contact with the NH ANG was as the Neurosurgical Consultant at the then Pease AFB base hospital, where the NH ANG is co-located. I was impressed with the professionalism and can-do attitude of the members of the NH ANG, which was indistinguishable to me from the members of the Active Duty Air Force of the 507 BMW.



In 1991, I became a founding member of the Seacoast Mass Casualty Incident (MCI) Planning Committee, a joint CIV/MIL group that organizes and runs triennial large scale MCI exercises at the Pease Airport. The original Seacoast Response – 1991 exercise was organized by the NH ANG, when they were the temporary landlords of the Pease Airport, after the Pease AFB was closed under BRAC I, and before the State of NH's Pease Development Authority (PDA) took over operation of the airport. That combined CIV/MIL exercise, which was based on the crash of United 232 in Sioux City, IA in July, 1989, had over 1,000 participants, and 165 victim volunteers were transported to the five area hospitals in NH and ME within 1 hour and 15 minutes – an incredible feat! The CIV and MIL communities worked seamlessly together. Since that time, the NH ANG has continued to participate in all the FAA mandated CIV triennial drills at Pease to varying degrees. The NH ANG is currently part of the planning group for our upcoming MCI Seacoast Response – 2014 drill on October 4, 2014.

In December 1992, the NH ANG deployed to Moron, Spain for the Restore Hope humanitarian support mission. It was the first time that an ANG unit created a multi-national/ multi-language refueling operations base, that then, after safely off-loading over one million gallons of fuel, turned the operation over to the Active Duty Air Force. Many of the lessons learned in Seacoast Response – 1991 were used to establish, execute, and complete the NH ANG's excellent mission outcome.

I reside in Newmarket, NH, at the edge of the Great Bay, under the approach path to Runway 16 at Pease. While growing up in Brooklyn, NY, I lived under the approach path to La Guardia Airport (LGA). I am familiar with the noise levels and visible pollution emanating from DC-7s, Lockheed Constellations, Lockheed Electras, and early model DC-9s, B-727s, and B-737s. The noise and air pollution coming from the current KC-135Rs inbound to Pease is much less, and not at all disturbing. I feel proud to look up and see the force, power and protection of the USA projected in the sky overhead. The noise levels and air pollution from the KC-46A will be less. My pride will be even greater!

I am a licensed Private Pilot with an Instrument Rating, and fly out of Littlebrook Airpark (3B4) in Eliot, ME, a small, non-towered General Aviation airport, with an Aerobatic Box above, which is 5 miles from the Pease runway. My safety and security in the air have never been a concern of mine. The control tower at Pease (KPSM) is staffed by both members of the 260 ATC Squadron and DOD ATC professionals, who are consummate in their skill of handling the diverse traffic in the Pease environment, from large military aircraft to a wide range of civilian aircraft – from factory built General Aviation aircraft of all sizes to homebuilt aircraft, ultralights and helicopters, to corporate jets, to commercial, charter, and cargo airliners. There are multiple other General Aviation airports within a 50 mile radius of Pease, along with Boston Logan (KBOS), Manchester (KMHT), and Portland ME (KPWM) jetports. The air traffic control (ATC) services provided by Pease are highly commendable.

Prior to the 9/11/2001 terror attacks, the NH ANG hosted CIV pilot safety conferences that were sponsored by the Aircraft Owners and Pilots Association's Air Safety Institute/Foundation (AOPA ASI/F). They have also safely and successfully sponsored multiple summer air shows, in conjunction with the Pease Development authority (PDA), The Boy Scouts of America (BSA), and the NH Brain Injury Association (NH BIA).

I am a volunteer member of the Executive Committee and the NH Awards Chair of the Employer Support of the Guard and Reserve (ESGR), a DOD-chartered organization that seeks to promote a culture in which all American employers support and value the military service of their employees. In this capacity, I interact with the troops, the non-commissioned officers, and the senior leaders of the NH ANG. I know the pride of all the members of the NH ANG to be the "best of the best."

The members of the NH ANG are our neighbors. The 157 ARW at Pease ANG, along with the Active Associate 64 ARS, are excellent neighbors, themselves, to the surrounding communities. The members of the NH ANG at Pease ANG, NH support their own members in need, through the Minuteman Fund, and the NH Chaplain's Emergency Relief fund.

An organization is only as good as its people, and can only achieve its missions, goals and objectives with strong leadership and excellent members. The NH ANG at Pease ANG, NH excels on all measures, and therefore will be very successful with the KC-46A Beddown.

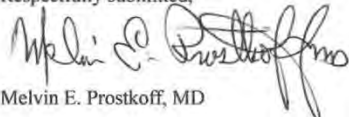
The Beddown of the KC-46A will bring an economic boost to the Seacoast region of NH and ME, increase regional employment, and add significant strategic value.

I am proud of my thirty year affiliation with the NHNG, the NH ANG, and the members of the 157 ARW at Pease ANG, NH. The NH ANG truly epitomizes all three of the USAF's Core Values: Integrity First, Service Before Self, and Excellence in All We Do.

I am honored to give my unconditional support to, and recommendation of, the awarding of the MOB 2 KC-46A Beddown to the Pease ANG, NH.

Thank you for your consideration of my comments.

Respectfully submitted,



Melvin E. Prostko, MD



## Southeastern Franklin County Chamber of Commerce

400 Sheryl Drive

Groveport, Ohio 43125

January 18, 2013  
Colonel James V. Jones  
Commander  
121st Air Refueling Wing  
7370 Minuteman Way  
Columbus, Ohio 43217

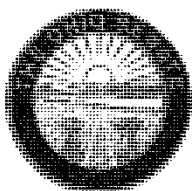
Dear Colonel Jones:

On behalf of the Southeastern Franklin County Chamber of Commerce, let me express our excitement on making the short list of locations for the new KC-46 Tanker. Since the 1940s, Rickenbacker has continuously and capably hosted military aviation operations. Military personnel and their families have found the Southeastern Franklin County Region to be a vibrant home in which to live, work and play. We'd be honored to host the first Air National Guard-led KC-46A main operating base. Our Chamber offers the vital support to ensure your Airmen and their families feel welcome, grow and prosper.

We know you will do a detailed analysis of our Region and compare us against other competitors to ensure the best choice for your people, your aircraft and your mission. But as a thriving area, you'll find no better, no more sustainable home. We promise you'll be well taken care of in Southeastern Franklin County. Your KC-46 ANG MOB should be Rickenbacker Air Guard Station. If you have any questions, please contact us at 614.836.5900.

Sincerely,

Robert Garvin  
President  
Southeastern Franklin County Chamber of Commerce



**JIM HUGHES**  
State Senator

Senate Building  
1 Capitol Square, Columbus, Ohio 43215  
Phone 614-466-5981  
Fax 614-466-7662

**OHIO SENATE**  
16th District

Committees  
Insurance & Financial Institutions,  
Chair  
Public Safety, Local Government &  
Veterans Affairs, Vice-Chair  
Criminal Justice  
Finance  
Rules

February 20, 2014

Victor Wilson  
Ohio National Guard Association  
1299 Virginia Avenue  
Columbus, OH 43212

Dear Mr. Wilson,

I am contacting you to express my support for the proposed beddown of one squadron of KC-46 aircrafts at Rickenbacker Air National Guard Station. I personally visited the area and believe that it is a great location for the aircrafts, future jobs, and economic growth associated with construction and renovation. As an elected official who represents Columbus, I believe the development of this area will not only create jobs, but will also serve as progression toward welcoming more businesses to this community.

Upon my review of the details set forth for this development, I wholeheartedly support the beddown of the KC-46 aircrafts and I believe it will prove beneficial to the community as a whole.

Please feel free to contact me if you have any questions.

Sincerely,

A handwritten signature in black ink, appearing to read "Jim Hughes".

Jim Hughes  
State Senator, District 16

Hughes@ohiosenate.gov

**Dr. Calvin L. Taylor**  
*Lt. Col., USA, Retired*  
**Worthington, OH 43085**

*March 21, 2014*

KC-46A EIS Project Manager,  
NGB/A7AM, Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157  
[ANG.ENV.comments@ang.af.mil](mailto:ANG.ENV.comments@ang.af.mil)

**SUBJECT: KC 46-A Future Location**

Dear Madam Secretary:

**I am writing in support of assigning the KC-46A “Pegasus” to Rickenbacker Air National Guard Base located in Columbus, Ohio.** The Air National Guard units located at Rickenbacker have a long-standing history of worldwide military support missions. Rickenbacker is not only capable but is ready, along with the surrounding community partners, to accept the new role of the main operating base for the KC-46 A. This holistic capability was understated in previous assessments.

**Homeland defense and national security would be well served by location of the KC-46A at Rickenbacker.** Columbus is within one hour flight time to 60% of the U.S. population. The Rickenbacker and Columbus International Airports located with a few miles of one another, operated by a single Airport Authority, provide four heavy lift capability runways. Available “intermodal” capability of rail, road, and air combined with existing distribution and warehouse facilities (Fed Ex, UPS, Cargo Lux, and Cathay Pacific) as well as the Defense Logistics Supply Center, provide an “inland port”. These existing capabilities provide low-cost, joint use surge capabilities that could benefit KC-46 operations.

**Columbus, Ohio is the 15<sup>th</sup> largest city and rated the 11<sup>th</sup> most military friendly city in America.** Columbus was recently awarded an Employer of the Guard and Reserve award. Central Ohio has 90,000 veterans in the area.

I request your serious consideration in locating the KC-46A at Rickenbacker Air National Guard Base.

Sincerely,

Dr. Calvin L. Taylor  
(Lt. Col, USA, Retired)

BCF: Honorable Deborah Lee James



**From:** Tur, Anthony [[mailto:anthony\\_tur@fws.gov](mailto:anthony_tur@fws.gov)]  
**Sent:** Tuesday, April 01, 2014 1:38 PM  
**To:** Kreider, Amanda J.  
**Cc:** John Warner; Jeannine Dube  
**Subject:** Re: Draft EIS - KC-46A Beddown at Alternative Air National Guard Installations

Ms. Kreider,

As stated in the draft EIS Section 3.3.5.3 (pg. 3-74), dated February 2014, there are no known occurrences of federally listed or candidate species within the vicinity of the 157 ARW installation. Consequently, I have no information to justify the need for further consultation regarding the Endangered Species Act. 83-1

Thank You for coordinating.  
Tony

Anthony Tur  
Endangered Species Biologist  
U.S. Fish and Wildlife Service  
New England Field Office  
70 Commercial Street, Suite 300  
Concord, New Hampshire 03301

Phone (603) 223-2541 x.24

[Anthony\\_Tur@fws.gov](mailto:Anthony_Tur@fws.gov)

<http://www.fws.gov/newengland/>



REPLY TO  
ATTENTION OF

DEPARTMENT OF THE ARMY  
PITTSBURGH DISTRICT, CORPS OF ENGINEERS  
WILLIAM S. MOORHEAD FEDERAL BUILDING  
1000 LIBERTY AVENUE  
PITTSBURGH, PA 15222-4186

March 25, 2014

Operations Division  
Regulatory Branch  
**2013-1818**

Anne Rowe  
NGB/A7AM  
Sheppard Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

Dear Ms. Rowe:

I refer to your letter dated February 1, 2014 and Draft EIS with CD, received in this office February 11, 2014, requesting comments on the proposed alternative locations for the second Main Operating Base (MOB2) project. The United States Air Force (USAF) plans to beddown the new aircraft KC-46A fleet at the MOB2, which will be lead by the Air National Guard.

The U. S. Army Corps of Engineers regulates earth moving activities within streams or wetlands. This includes any placement of fill material, temporary or permanent. If you are proposing a new project that entails the placement of fill material in waters (including wetlands), or if you are proposing a modification to an existing project that entails the placement of fill material in waters, then this letter serves as your notice that your project may require a permit from this office.

84-1

Based on the information contained within the Draft EIS it appears that impacts to waters may be proposed. We recommend that you hire a qualified wetland consultant to evaluate the entire project area in order to determine if any streams or wetlands are present. Enclosed is a list of wetland consultants. If impacts to streams or wetlands are in fact proposed, you should again contact this office to discuss permitting requirements. Every effort should be made to avoid and minimize impacts to the aquatic resources on-site. We will continue to work with you in order to protect any aquatic resources that may be present.

84-2

This project has been assigned Department of the Army Permit Number **2013-1818**. Please refer to this number in all future correspondence. If you have any questions, please contact Linda Everley at 412-395-7152 or by e-mail: [Linda.L.Everley@usace.army.mil](mailto:Linda.L.Everley@usace.army.mil).

Sincerely,  
/signed/  
Joshua D. Shaffer *for*  
Jon T. Coleman  
Chief, South Section, Regulatory Branch

-2-

Enclosure

Copy Furnished:

KC-46A EIS Project Manager  
NGB/A7AM  
Sheppard Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

## **Wetland Consultant List**

The following is a list of contractors for environmental and engineering services. This list is not all inclusive. This list contains only firms who have requested listing. The Corps of Engineers provides this list as a service to the public. No recommendation or guarantee of competence or experience is implied by this listing. The Corps of Engineers neither endorses nor accepts responsibility for work performed by any firm on this list. We suggest that prospective clients ask for credentials before contracting for professional services.

NOTE: The Corps is the final authority with respect to the delineation of wetland areas and other waters of the U.S., as well as the determination of activities requiring Department of the Army permits. All wetland delineations must be conducted and documented in accordance with the “1987 Wetland Delineation Manual.” The Corps will review all preliminary jurisdictional determinations to verify their accuracy.

**A.D. Marble & Company**

1000 Gamma Drive, Suite 203  
Pittsburgh, PA 15238  
412-968-5977  
Fax: 412-968-5978  
[www.admarble.com](http://www.admarble.com)

**AGES, Inc.**

2402 Hookstown Grade Road  
Suite 200  
Clinton, PA 15026  
412-264-6453  
412-264-6567 Fax  
[www.appliedgeology.net](http://www.appliedgeology.net)

**Alliance Consulting**

Raleigh County Airport Industrial Park  
124 Philpott Lane  
Beaver, WV 25813  
304-255-0491  
[www.aci-wv.com](http://www.aci-wv.com)

**Allstar Ecology, LLC.**

1580 McKinney Cave Road  
Reedsville, WV 26547  
Phone/Fax: 1-866-213-2666

**ARM Group, Inc.**

1129 West Governor Road  
P.O. Box 797  
Hershey, PA 17033  
717-533-8600  
[www.armgroup.net](http://www.armgroup.net)

**ASC Group, Inc.**

4620 Indianola Avenue  
Columbus, OH 43214  
614-268-2514  
[www.ascgroup.net](http://www.ascgroup.net)

**Atlantic Environmental Group, Inc.**

453 S.R. 227  
Oil City, PA 16301  
814-677-3139

**Blazosky Associates, Inc.**

787 Pine Valley Drive  
Suite C  
Pittsburgh, PA 15239  
724-733-2060  
724-733-2077 Fax  
[www.blazosky.com](http://www.blazosky.com)  
[craigb@blazosky.com](mailto:craigb@blazosky.com) Email

(Updated October 2013)

**Bob Beran**

2322 W. Sunbury Road  
Boyers, PA 16020  
724-735-2766

**BL Companies**

3755 Boettler Oaks Drive  
Suite G  
Green, OH 44685  
234-294-6340  
[www.blcompanies.com](http://www.blcompanies.com)

**Patrick Bonislowsky**

3220 Maine Street, Apt. C  
Aliquippa, PA 15001  
724-774-3494

**Boord, Benchek & Associates**

345 Southpointe Blvd.  
Canonsburg, PA 15317  
724-984-5482  
724-746-1244 Fax  
[www.boordbenchek.com](http://www.boordbenchek.com)  
[ebenchek@boordbenchek.com](mailto:ebenchek@boordbenchek.com) Email

**Bowser Morner**

4518 Taylorsville Road  
Dayton, OH 45424  
937-236-8805  
[www.bowser-morner.com](http://www.bowser-morner.com)

**Buckeye Mineral Services, Inc.**

P.O. Box 546  
New Philadelphia, OH 44663

**Civil & Environmental Consultants, Inc.**

333 Baldwin Road  
Pittsburgh, PA 15205  
412-429-2324  
[www.cecinc.com](http://www.cecinc.com)

**CME Management, LLC**

165 East Union Street  
Somerset, PA 15501  
814-443-3344

**Collective Efforts, LLC**

462 Perry Highway, 2<sup>nd</sup> Floor  
Pittsburgh, PA 15229  
412-459-0114

**CTL**

733 Fairmont Road  
Morgantown, WV 26501  
304-292-1135  
[www.ctleng.com](http://www.ctleng.com)

**Davey Resource Group**

1500 N. Mantua Street  
P.O. Box 5193  
Kent, OH 44240  
330-673-5685  
[www.davey.com](http://www.davey.com)

**Dieffenbach & Hritz, LLC**

827 Fairmont Road, Suite 203  
Morgantown, WV 26501  
304-241-1694  
[www.dandhengineers.com](http://www.dandhengineers.com)

**Duda Environmental**

429 Jumonville Road  
Hopwood, PA 15445  
724-438-3036  
724-438-3929 Fax  
[duda-environmental@hotmail.com](mailto:duda-environmental@hotmail.com)

**The EADS Group**

1126 Eighth Avenue  
Altoona, PA 16602  
814-944-5035  
[www.eadsgroup.com](http://www.eadsgroup.com)

**E.A. Thaner & Environment, Inc.**

9951 Old Perry Highway  
Wexford, PA 15090  
724-935-8188

**Ecology & Environment, Inc.**

5098 West Washington Street  
Suite 406  
Cross Lanes, WV 25313  
304-769-0207  
[www.ene.com](http://www.ene.com)

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**Ecotune**

215 Executive Drive  
Suite 204  
Cranberry Township, PA 16066  
724-779-9011

**Environmental Solutions & Innovations, Inc.**

4525 Este Avenue  
Cincinnati, OH 45232  
513-451-1777  
[www.environmentalsi.com](http://www.environmentalsi.com)  
[vbrack@environmental.com](mailto:vbrack@environmental.com) Email

**EnviroScience**

3781 Darrow Road  
Stow, OH 44224  
330-688-0111  
[www.enviroscienceinc.com](http://www.enviroscienceinc.com)

**Envirens, Inc.**

Michael S. Hollins  
410-299-6898  
[envirens.com](http://envirens.com)  
[envirens@aol.com](mailto:envirens@aol.com)

**Flickinger Wetland Service Group, Inc.**

554 White Pond Drive, Suite D  
Fairlawn, OH 44320  
330-865-0688  
[www.flickingerwetlandgroup.com](http://www.flickingerwetlandgroup.com)

**GAI Consultants**

385 East Waterford Drive  
Homestead, PA 15120  
412-476-2000  
[www.gaiconsultants.com](http://www.gaiconsultants.com)

**Garvin Boward Beitko Engineering, Inc.**

632 South Center Avenue, Apt A  
Somerset, PA 15501  
814-443-2548  
<http://garvinbowardeng.com/stoki@garvinbowardeng.com> Email

**Hatch Mott MacDonald**

Summit Corporate Center  
1001 Corporate Drive, Suite 100  
Canonsburg, PA 15317  
(724) 514-5330  
[www.hatchmott.com](http://www.hatchmott.com)  
[donald.nusser@hatchmott.com](mailto:donald.nusser@hatchmott.com)

**Jack A. Hamilton & Associates, Inc.**

342 High Street, Box 471  
Flushing, OH 43977  
740-968-4847  
[www.hamiltonandassoc.com](http://www.hamiltonandassoc.com)

**Keystone Consultants, Inc.**

32 East Main Street  
Carnegie, PA 15106  
412-278-2100  
[www.keystoneconsultants.net](http://www.keystoneconsultants.net)

**Kleski Environmental Services**

P.O. Box 812  
46071 State Route 124  
Racine, OH 45771  
740-949-2240  
[www.kleskienviro.com](http://www.kleskienviro.com)

**L. Robert Kimball & Associates**

415 Moon Clinton Road  
Coraopolis, PA 15108  
412-262-5400  
[www.lrkimball.com](http://www.lrkimball.com)

**Lee Simpson Associates, Inc.**

203 West Weber Avenue  
P.O. Box 5504  
DuBois, PA 15801  
814-371-7750  
[www.leesimpson.com](http://www.leesimpson.com)

**Lennon, Smith, & Souleret Engineering, Inc.**

846 Fourth Avenue  
Coraopolis, PA 15108  
412-265-4400  
[www.lsse.com](http://www.lsse.com)

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**MAD Scientist & Associates, Inc.**

253 N. State Street, Suite 101  
Westerville, OH 43081-1472  
614-818-9156  
[www.madscientistassociates.net](http://www.madscientistassociates.net)

**Maguire Group, Inc.**

D.L. Clark Building, 6<sup>th</sup> Floor  
503 Martindale Street  
Pittsburgh, PA 15212-5746  
412-322-8340  
[www.maguiregroup.com](http://www.maguiregroup.com)

**Melius & Hockenberry**

2402 William Penn Highway  
Suite 2  
Johnstown, PA 15909  
814-322-4822  
[www.mhesinc.com](http://www.mhesinc.com)

**Michael Baker Corporation**

Airside Business Park  
100 Airside Drive  
Moon Township, PA 15108  
412-269-4618  
[www.mbakercorp.com](http://www.mbakercorp.com)

**Morris Knowles & Associates**

443 Athena Drive  
Delmont, PA 15626  
724-468-4622  
[www.morrisknowles.com](http://www.morrisknowles.com)

**MS Consultants, Inc.**

1 South Main Street, 8<sup>th</sup> Floor  
Akron, OH 44308-1864  
330-928-9617  
[www.msconsultants.com](http://www.msconsultants.com)

**The Orin Group, LLC**

10 North West Avenue  
Suite 200  
Tallmadge, OH 44278  
330-630-3937  
[www.theoringroup.com](http://www.theoringroup.com)

**Pennsylvania Soil & Rock, Inc.**

570 Beatty Road  
Monroeville, PA 15146  
412-372-4000  
[www.pasoilrock.com](http://www.pasoilrock.com)

**Pgh Wildlife & Environmental, Inc.**

853 Beagle Club Road  
McDonald, PA 15057  
724-796-5137  
[nbossart@winstream.net](mailto:nbossart@winstream.net)

**Porter Consulting Engineers**

814 North Main Street  
Meadville, PA 16335  
814-337-4447  
[www.pceengineers.com](http://www.pceengineers.com)

**Potesta & Associates, Inc.**

7012 MacCorkle Avenue, SE  
Charleston, WV 25304  
304-342-1400  
[www.potesta.com](http://www.potesta.com)

**R.A. Smith National, Inc.**

300 Corbet Street, Suite 200B  
Tarentum, PA 15084  
724-224-2330  
[www.rasmithnational.com](http://www.rasmithnational.com)

**R.D. Zande & Associates**

1500 Lake Shore Drive  
Suite 100  
Columbus, OH 43204  
614-486-4383  
[www.zande.com](http://www.zande.com)

**Skelly and Loy**

2500 Eldo Road, Suite 2  
Monroeville, PA 15146  
412-856-1676  
[www.skellyloy.com](http://www.skellyloy.com)

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**S&ME, Inc.**

6190 Enterprise Court  
Dublin, OH 43016  
614-793-2226  
[www.smeinc.com](http://www.smeinc.com)

**T&M Associates**

11 Tindall Road  
Middletown, NJ 07748  
732-671-6400  
732-671-7365 (fax)

**Terradon Corporation**

401 Jacobson Drive  
Poca, WV 25159  
304-729-9133  
[www.terraddon.com](http://www.terraddon.com)

**Thrasher Engineering**

30 Columbia Boulevard  
P.O. Box 1532  
Clarksburg, WV 26301  
304-624-4108  
[www.thrashereng.com](http://www.thrashereng.com)

**Triad**

P.O. Box 228  
Hagerstown, MD 21740  
301-797-6400  
[www.triadeng.com](http://www.triadeng.com)

**Tri- County Engineering, LLC**

319 Paintersville Road  
Hunker, PA 15639  
724-635-0210  
[www.tricountyeng.com](http://www.tricountyeng.com)

**Urban Engineers**

1319 Sassafras Street  
Erie, PA 16501  
814-453-5702  
[www.urbanengineers.com](http://www.urbanengineers.com)

**URS Corporation**

1375 Euclid Ave., Suite 600  
Cleveland, OH 44115  
216-622-2400  
[www.urscorp.com](http://www.urscorp.com)

**URS Corporation**

Foster Plaza 4  
501 Holiday Drive, Suite 300  
Pittsburgh, PA 15220  
412-503-4700  
[www.urscorp.com](http://www.urscorp.com)

**Virginia Waters & Wetlands, Inc.**

274 Corporate Circle  
Manassas, VA 20110  
703-330-9992

**Wallace & Pancher, Inc.**

1085 S. Hermitage Road  
Hermitage, PA 16148  
724-981-0155  
[www.wallacepancher.com](http://www.wallacepancher.com)

**Western Reserve Land Consultants**

8650 Market Street  
Boardman, OH 44512  
330-965-2337

**Wetlands Studies and Solutions, Inc.**

5300 Wellington Branch Drive, Suite 100  
Gainesville, VA 20155  
703-679-5637  
[www.wetlandstudies.com](http://www.wetlandstudies.com)

**WHM Group, LTD**

2525 Green Tech Drive  
Suite B  
State College, PA 16803  
814-689-1650  
814-689-1557 Fax  
[www.wetlandshabitat.com](http://www.wetlandshabitat.com)  
[inquiries@wetlandshabitat.com](mailto:inquiries@wetlandshabitat.com) Email

(Updated October 2013)



**Wilson Ecological Consulting**

515 Henderson Road

Julian, PA 16844

814-933-2488

[www.wilsonecological.com](http://www.wilsonecological.com)

**Widmer Engineering**

806 Lincoln Place

Beaver Falls, PA 15010

724-847-1696

[www.widmerengineering.com](http://www.widmerengineering.com)

(Updated October 2013)



## United States Department of the Interior

### FISH AND WILDLIFE SERVICE

New England Field Office  
70 Commercial Street, Suite 300  
Concord, NH 03301-5087  
<http://www.fws.gov/newengland>



March 25, 2014

Reference: Project  
Draft EIS, 2<sup>nd</sup> Main Operating Base KC-46A Beddown  
at Alternative Air National Guard Installations

Location  
Pease ANG, NH

Anne Rowe  
NGB/A7AM  
Sheperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews MD 20762-5157

Dear Ms. Rowe:

This responds to your recent correspondence requesting information on the presence of federally listed and/or proposed endangered or threatened species in relation to the proposed activity referenced above. These comments are provided in accordance with the Endangered Species Act (87 Stat. 884, as amended; 16 U.S.C. 1531, *et seq.*).

Based on information currently available to us, no federally listed or proposed, threatened or endangered species or critical habitat under the jurisdiction of the U.S. Fish and Wildlife Service are known to occur in the project area. Preparation of a Biological Assessment or further consultation with us under section 7 of the Endangered Species Act is not required. No further Endangered Species Act coordination is necessary for a period of one year from the date of this letter, unless additional information on listed or proposed species becomes available.

85-1

To obtain updated lists of federally listed or proposed threatened or endangered species and critical habitats, it is not necessary to contact this office. Instead, please visit the Endangered Species Consultation page on the New England Field Office's website:

[www.fws.gov/newengland/endangeredspec-consultation.htm](http://www.fws.gov/newengland/endangeredspec-consultation.htm) (accessed January 2013)

On the website, there is also a link to procedures that may allow you to conclude if habitat for a listed species is present in the project area. If no such habitat exists, then no federally listed species are present in the project area and there is no need to contact us for further consultation. If the above

Anne Rowe  
March 25, 2014

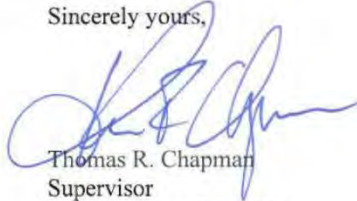
2

conclusion cannot be reached, further consultation with this office is advised. Information describing the nature and location of the proposed activity that should be provided to us for further informal consultation can be found at the above-referenced site.

85-1  
Cont.

Thank you for your coordination. Please contact Maria Tur of this office at 603-223-2541, extension 12, if we can be of further assistance.

Sincerely yours,



Thomas R. Chapman  
Supervisor  
New England Field Office

1 home of the new KC-46A. The airmen from the  
2 190th are active in our community, and they are  
3 highly represented by the citizens in our  
4 community. The active duty airmen and their  
5 families with the KC-46A operating base would  
6 equally be welcome and would quickly become a  
7 part of our family. The Board of County  
8 Commissioners strongly encourages you to  
9 consider Forbes Field Air National Guard Base  
10 as the new home for the Air National Guard  
11 KC-46A Main Operating Base. We stand ready to  
12 provide whatever assistance we can to assure a  
13 smooth transition and move to Topeka. Signed  
14 Bob Archer, Chair; Kevin Cook, Vice Chair; and  
15 Shelly Buhler, Member of the Commission.

16 COLONEL SHERMAN: Thank you, sir.

17 CHAIRMAN ARCHER: Now, on a personal  
18 note, as an elected official, I get a lot of  
19 different assignments and requests, and one  
20 that I got for the Visit Topeka magazine was to  
21 say in your own words what makes Topeka unique.  
22 And I submitted the following: The small town  
23 charm, friendliness and cooperation of a  
24 capital city with great education, arts and  
25 livability make Topeka one of a kind. I hope

29

1 you'll locate here. We'd really love to have  
2 the fueler. Thank you very much.

3 COLONEL SHERMAN: Next we have Mr.  
4 Neil Dobler from the Chamber of Commerce. Sir.

5 MR. DOBLER: Thank you. Thank you  
6 and welcome. My name is Neil Dobler. I  
7 represent the Chamber of Commerce in the  
8 capacity of the chairman of the board for 2014.  
9 I have some prepared comments which I will  
10 leave.

11 The Greater Topeka Chamber of Commerce  
12 strongly urges the U. S. Air Force to place the  
13 First Air National Guard KC-46A Main Operating  
14 Base with the 190th Air Refuelling Wing at  
15 Forbes Field Air National Guard Base, Topeka,  
16 Kansas. The 190th has worked diligently over  
17 the years along with the leadership from the  
18 Air Force and Air National guard to create one  
19 of the highest-quality and most cost effective  
20 tanker operations in the country. They have  
21 done that with the strong support of this  
22 community, as you have heard from the Mayor and  
23 Chairman Archer. This community has been home  
24 to Forbes Field since 1942, so we have a long,  
25 long history.

1 Company and chairman of the board of Go Topeka.  
2 Most of what I've already said has been said by  
3 the distinguished gentlemen that got to speak  
4 ahead of me. And I appreciate them going  
5 through all of that.

6 I do want to add that the Topeka business  
7 community -- and I see this in my work life,  
8 and I see this in being involved in Go Topeka  
9 -- is very supportive of the military, very  
10 supportive of the 190th. The 190th adds great  
11 economic value to Topeka, and I believe Topeka  
12 adds great economic value to the 190th. One of  
13 the advantages of bringing the aircraft here is  
14 that we do have a very large Air Force base  
15 runway so it can accommodate those. The  
16 facilities here and the infrastructure here are  
17 already in place, with minor adjustments for  
18 the military to be able to use our facilities  
19 here in Topeka. Our community has very strong  
20 support. We've got the housing, we've got the  
21 schools, we've got some great opportunities for  
22 education and great opportunities for jobs for  
23 the family members of the military that would  
24 be coming to Topeka should this happen. So it  
25 would be a great opportunity for the military

35

1 as well to come to Topeka with these additional  
2 aircraft.

3 A few years ago my son joined the Marine  
4 Reserves; and with that, I have had an  
5 opportunity to get a little more first hand  
6 knowledge and observation, I should probably  
7 say, of how the public supports the military in  
8 Topeka. And it is just outstanding when he  
9 goes places, the reactions that he gets because  
10 of his service to our country. And we  
11 certainly appreciate your service to our  
12 country and everything that you have done for  
13 us through today. We certainly encourage you  
14 to bring the KC-46A here to Topeka. Thank you  
15 very much.

16 COLONEL SHERMAN: You're welcome,  
17 sir. This evening's goal was to provide you  
18 with open communication and accurate  
19 information to ensure your informed  
20 participation in the NEPA Process. I hope that  
21 we have achieved that goal. Please feel free  
22 to visit the information booths and ask any  
23 additional questions you may have regarding  
24 this proposed action. You have an opportunity  
25 during the formal comment period ending March

26

1 history of military presence, we're very proud to have  
2 this hearing tonight and very proud that there may be  
3 an opportunity for the KC-46A to be in the Portsmouth  
4 area, and certainly, because of the public hearing,  
5 taking into consideration the environmental impact on  
6 the City of Portsmouth and the surrounding area.

7 I urge all citizens to support this proposal, to  
8 support the New Hampshire National Guard as they have.  
9 We appreciate all that you're doing in our community.  
10 You are definitely part of our community. This is  
11 definitely a team effort, and we appreciate your  
12 presence. And we look forward to supporting you in  
13 your future endeavors, working with you, and being  
14 part of this new program. So thank you very much.

15 COLONEL MULDOON (Judge Advocate): Thank you,  
16 Mayor.

17 State Senator Martha Fuller Clark.

18 SENATOR CLARK: Thank you very much for the  
19 opportunity to speak, and thank you all for being here  
20 this evening. I have a letter that I would like to  
21 read into the record.

22 Dear Members of the National Guard Bureau, I am  
23 writing in support of bringing the Air Force's new



39

1 safe -- see, this is where I get very emotional for  
2 what you do -- and we are happy to drive to work  
3 side-by-side with the Air National Guard's women and  
4 men here at Pease. And because the existing ANG wing  
5 is already here, all the facilities and  
6 infrastructures are in place to receive the new KC-46A  
7 plane. Logistically, this is a no-brainer, and  
8 economically, this would have a wonderful impact on  
9 the area by creating new jobs, and to me, the math is  
10 pretty simple.

11 We have been fortunate enough to see Pease  
12 Tradeport become a commercial success, but it would  
13 not be the same place without those Air National Guard  
14 planes and the people who make them work so well. I  
15 fully support the efforts of the Pease Air National  
16 Guard Base to acquire the KC-46A Pegasus Tanker, and I  
17 look forward to continuing our partnership in the  
18 future.

19 Renee Plummer. Thank you.

20 COLONEL MULDOON (Judge Advocate): Thank you,  
21 Ms. Plummer.

22 Mr. Doug Bates.

23 MR. BATES: My name is Doug Bates. I'm

48

1 forward to the continuation of the reliability and  
2 future generations with the KC-46A. Pease is proud to  
3 be an ideal location with the optimum facilities for  
4 the U.S. military's tanker mission, and we are proud  
5 to own and operate the airport that will host the  
6 first rollout of the Guard's KC-46As. Thank you.

7 COLONEL MULDOON (Judge Advocate): Thank you,  
8 Mr. Hopper.

9 Mr. John Frink.

10 MR. FRINK: Yes, I'm John Frink. I represent  
11 only myself, my bees, my vegetable garden, my animals.  
12 I have a very small farm that's very close to the  
13 north end of the runway, and I would like to comment  
14 on the environmental impact that Newington has had  
15 because of the installation.

16 I do respect and admire the Air National Guard.  
17 They are good neighbors, far better than what we had  
18 when we had Pease Air Force base. You only have to  
19 get a little bit close to the Newington side of the  
20 air base and you can see the pollution mediation  
21 measures that have been taken and you see the  
22 monitoring wells and things are not what they were.  
23 But that is neither here nor there.

49

1 I would like to relate a story just for my  
2 credibility here. I attended a town meeting in  
3 Newington when the town was being asked to purchase a  
4 conservation easement on property owned by Ghuruda  
5 Khalsa, which is adjacent to the north boundary of  
6 Pease. And there was a person, a resident in  
7 Newington who was a former Air National Guard member  
8 and who spoke up, and he said, you know, before the  
9 town really gets too involved in purchasing this  
10 easement, it would probably be a good idea to have an  
11 environmentalist come out and look at the property  
12 because when I was at the Air National Guard, we  
13 dumped a lot of fuel on that property. Now, I know  
14 it's a policy, although I have not personally called  
15 the Air National Guard, to deny jettisoning of fuel,  
16 however, I get up in the morning and certain  
17 atmospheric conditions, and there's a very strong  
18 smell of kerosene.

91-1

19 Now, I've heard that this is because of the  
20 warm-up process and prevailing winds. I've also heard  
21 that it's necessary to jettison fuel in order to land  
22 or take off or something. But it's distressing.

23 It's perhaps better that I would ask the

50

1 question rather than try to make a formal statement  
2 here, and the question would be, with the new tankers,  
3 which I'm sure are probably environmentally more  
4 friendly than the KC-135s, given that the 8 aircraft  
5 would be replaced by 12, would there be more of this  
6 jet fuel in the air over my house? I have honey bees  
7 that aren't doing well. That probably is the case  
8 almost everywhere. I have a vegetable garden, which  
9 is pretty much organic, and I think it's important to  
10 really consider the environment.

11 The City of Portsmouth and State of New  
12 Hampshire have always been very supportive of the  
13 military base there, but the people in Newington are  
14 the ones that really experience the downside. I have  
15 TCE in the water that runs through my property. I  
16 don't have to drink that water, but there are  
17 environmental impacts, and I just would like to be  
18 reassured that the amount of fuel in the air vapor is  
19 not going to increase due to the increased aircraft.

20 Thank you very much.

21 COLONEL MULDOON (Judge Advocate): Thank you,  
22 Mr. Frink. Dr. Melvin Prostkoff.

23 DR. PROSTKOFF: Thank you. My name is Dr.

91-1  
Cont.

## TRANSCRIPT OF PROCEEDINGS

23

\* \* \* \* \*

1 My comment isn't addressing the  
2 environmental impact. The small attendance  
3 numbers you see here should be proof that the  
4 region supports the 171st, the expansion, and we  
5 want to see the 171st get the new tankers and  
6 continue serving and doing the fantastic job  
7 they do.

8 That is my comment. Thank you very much.

9 COLONEL ALLRED: Thank you, sir.

10 I want to make sure everyone has an  
11 opportunity to provide comments or questions.  
12 Is there any other question or comment from  
13 anyone this evening?

14 (No response.)

15 COLONEL ALLRED: Apparently not.

16 I would like to give the National Guard  
17 Bureau an opportunity to address any questions  
18 that might have come up at all. I think I have  
19 in front of us all of the questions that have  
20 been raised.

21 Any other questions that have been fielded?  
22 I want to make sure I am not missing anything.

23 If you still should have any questions that  
24 arise after we have closed the proceeding,  
25 please feel free to visit these information

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888.800.9656

22

1 we brought the community together with Senator Rob  
2 Portman. We spent a full day here and learned, I  
3 think, A through Z of what goes on here at  
4 Rickenbacker.

5 This community and this group is  
6 committed, regarding this mission, to help drive  
7 down the cost of this facility. Also, we know of no  
8 environmental obstacles that would prevent locating  
9 the KC-46A here at Rickenbacker. We fully believe  
10 that Rickenbacker can serve this mission well. We  
11 are committed if the mission does come here, as a  
12 community, to help connect any active duty to  
13 housing and other quality of life accommodations and  
14 services.

15 I will say one final thing and remind  
16 everyone here of the historical tradition of the  
17 Rickenbacker Air Force Base. As you walk in you see  
18 the historical markers. I believe many folks  
19 believe that Eddie Rickenbacker would be very  
20 pleased and feel it was appropriate for the KC-4A's  
21 mission to be here.

22 With that I appreciate very much and thank  
23 you very much for the time.

24 COLONEL MARK ALLRED: Thank you, sir.

25 Again, we want to ensure that everyone has ample

-----Original Message-----

From: [jeromy\\_applegate@fws.gov](mailto:jeromy_applegate@fws.gov) [[mailto:jeromy\\_applegate@fws.gov](mailto:jeromy_applegate@fws.gov)] On Behalf Of Ohio, FW3

Sent: Monday, April 07, 2014 1:39 PM

To: Rowe, Anne M CTR USAF ANG NGB/A7AM

Subject: Second Main Operation Base KC-46A Beddown

Kevin and Anne,

Relative to the subject project, you have made a determination that the project will have no effect on the federally endangered Indiana bat. Because you have made a "no effect" determination, consultation (and FWS concurrence) under section 7(a)(2) of the Endangered Species Act is not required. 94-1

Please contact me with any questions.

Jeromy Applegate

614-416-8993





## United States Department of the Interior

FISH AND WILDLIFE SERVICE  
Pennsylvania Field Office  
315 South Allen Street, Suite 322  
State College, Pennsylvania 16801-4850



April 2, 2014

KC-46A EIS Project Manager  
NGB/A7AM  
Shepperd Hall  
3501 Fetchet Avenue  
Joint Base Andrews, MD 20762-5157

RE: USFWS Project #2013-1228

Dear Project Manager:

This responds to your letter of February 1, 2014, regarding the Draft Environmental Impact Statement (EIS) for the Second Main Operating Base KC-46A Beddown at Alternative Air National Guard Installations located in several states, including Pittsburgh, Pennsylvania, at the Pittsburgh Air National Guard Station. The following comments are provided pursuant to the Endangered Species Act of 1973 (87 Stat. 884, as amended; 16 U.S.C. 1531 *et seq.*) to ensure the protection of endangered and threatened species and the Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) to ensure the protection of migratory bird species.

Except for occasional transient species, no federally listed threatened or endangered species under our jurisdiction are known to occur within the project impact area. 95-1

However, the Pittsburgh Air National Guard Station is within the range of the northern long-eared bat (*Myotis septentrionalis*), a species that was proposed for listing as an endangered species on October 2, 2013. No critical habitat has been proposed at this time. Species proposed for listing are not afforded protection under the ESA; however, as soon as a listing becomes effective, the prohibition against jeopardizing its continued existence and “take”<sup>1</sup> applies **regardless of an action’s stage of completion**. Therefore, to avoid project delays we 95-2

<sup>1</sup> As defined in the Act, take means “. . . to harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or collect, or attempt to engage in any such conduct.” “Harm” in the definition of take means an act which kills or injures wildlife. Such act may include significant habitat modification or degradation that results in death or injury to listed species by significantly impairing essential behavioral patterns, including breeding, feeding or sheltering (50 CFR part 17.3). “Harass” means an intentional or negligent act or omission which creates the likelihood of injury to wildlife by annoying it to such an extent as to disrupt normal behavioral patterns which include, but are not limited to, breeding, feeding, or sheltering.



recommend that the effect of the project on northern long eared bats, and their habitat, be considered during the project planning and design. Additional information about northern long-eared bats, including ecology, habitat descriptions, listing status updates, and possible conservation measures may be found at [www.fws.gov/midwest/endangered/mammals/nlba/index.html](http://www.fws.gov/midwest/endangered/mammals/nlba/index.html) (click on Northern Long-eared Bat Interim Conference and Planning Guidance). We are available to discuss potential conservation measures specific to your project design.

95-2  
Cont.

#### Assessment of Risks to Migratory Birds

The Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented.

The potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (e.g. breeding, foraging, migrating, etc.); and landscape features. Please review the enclosed information for general recommendations for avoiding and minimizing impacts to migratory birds within and around the project area. Please be aware that since these are general guidelines, some of them may not be applicable to the current project design or they may have already been included in the project design.

95-3

*To avoid potential delays in reviewing your project, please use the above-referenced USFWS project tracking number in any future correspondence regarding this project.*

If you have any questions regarding this matter, please contact Pamela Shellenberger of my staff at 814-234-4090.

Sincerely,



Lora L. Zimmerman  
Field Office Supervisor

### **Adaptive Management Practices for Conserving Migratory Birds**

The Fish and Wildlife Service is the principal Federal agency charged with protecting and enhancing populations and habitat of migratory bird species. The Migratory Bird Treaty Act (MBTA, 16 U.S.C. 703-712; Ch. 128; July 13, 1918; 40 Stat. 755, as amended) prohibits the taking, killing, possession, transportation, and importation of migratory birds, their eggs, parts, and nests, except when specifically authorized by the Department of the Interior. While the MBTA has no provision for authorizing incidental take, the Service recognizes that some birds may be killed even if all reasonable measures to avoid take are implemented. Unless the take is authorized, it is not possible to absolve individuals, companies or agencies from liability (even if they implement avian mortality avoidance or similar conservation measures). However, the Office of Law Enforcement focuses on those individuals, companies, or agencies that take migratory birds with disregard for their actions and the law.

The potential exists for avian mortality from habitat destruction and alteration within the project boundaries. Site-specific factors that should be considered in project siting to avoid and minimize the risk to birds include avian abundance; the quality, quantity and type of habitat; geographic location; type and extent of bird use (e.g. breeding, foraging, migrating, etc.); and landscape features.

We offer the following recommendations to avoid and minimize impacts to migratory birds within and around the project area:

1. Where disturbance is necessary, clear natural or semi-natural habitats (e.g., forests, woodlots, reverting fields, shrubby areas) and perform maintenance activities (e.g., mowing) between September 1 and March 31, which is outside the nesting season for most native bird species. Without undertaking specific analysis of breeding species and their respective nesting seasons on the project site, implementation of this seasonal restriction will avoid take of most breeding birds, their nests, and their young (i.e., eggs, hatchlings, fledglings).
2. Minimize land and vegetation disturbance during project design and construction. To reduce habitat fragmentation, co-locate roads, fences, lay down areas, staging areas, and other infrastructure in or immediately adjacent to already-disturbed areas (e.g., existing roads, pipelines, agricultural fields) and cluster development features (e.g., buildings, roads) as opposed to distributing them throughout land parcels. Where this is not possible, minimize roads, fences, and other infrastructure.
3. Avoid permanent habitat alterations in areas where birds are highly concentrated. Examples of high concentration areas for birds are wetlands, State or Federal refuges, Audubon Important Bird Areas, private duck clubs, staging areas, rookeries, leks, roosts, and riparian areas. Avoid establishing sizable structures along known bird migration pathways or known daily movement flyways (e.g., between roosting and feeding areas).
4. To conserve area-sensitive species, avoid fragmenting large, contiguous tracts of wildlife habitat, especially if habitat cannot be fully restored after construction. Maintain

contiguous habitat corridors to facilitate wildlife dispersal. Where practicable, concentrate construction activities, infrastructure, and man-made structures (*e.g.*, buildings, cell towers, roads, parking lots) on lands already altered or cultivated, and away from areas of intact and healthy native habitats. If not feasible, select fragmented or degraded habitats over relatively intact areas.

5. Develop a habitat restoration plan for the proposed site that avoids or minimizes negative impacts to birds, and that creates functional habitat for a variety of bird species. Use only plant species that are native to the local area for revegetation of the project area.

If you have any questions regarding these measures, please contact Jennifer Siani of the Pennsylvania Field Office located in State College, PA at 814-234-4090 ext 225 or [Jennifer\\_Siani@fws.gov](mailto:Jennifer_Siani@fws.gov)



TUSCARORA NATION  
2006 MT. HOPE ROAD — VIA: LEWISTON, NEW YORK 14092

April 14, 2014

U.S. Department of Defense  
National Guard Bureau  
3501 Fatch Avenue  
Joint Base Andrews, MD 20762-5157

Dear Mr. William Albro,

The Tuscarora Nation is in receipt of the United States Air Force, 171<sup>st</sup> Air Refueling Wing, division of the National Guard Bureau (NGB) letter dated September 24, 2013 regarding the proposed five (5) alternative location of the beddown of the KC-46A at the second main operating base (MOB 2), which includes Pittsburg ANG, PA.

After review of the proposed project and the list of construction activities within the area of potential effect (APE) as cited in the 9/24/13 letter, the Tuscarora Nation concurs with the NGB and 171ARW determination that the proposed project will have no effect on predetermined archeological sites within the APE.

In the future of the above proposed project, during any phase of ground disturbances within the APE and its vicinity, please notify the Tuscarora Nation if traditional, cultural, burial and/or human remains are discovered. We ask that construction and all ground disturbance practices cease activity until further appropriate action can be taken and all interested parties can participate in the resolution and mitigation of adverse effects.

In no way does this response affect the sovereignty of the Tuscarora Nation. If you have any specific questions, do not hesitate to call, email or contact me at 5226 Walmore Road, Lewiston, NY 14092; [bprintup@hettf.org](mailto:bprintup@hettf.org); or #716.264.6011, x103.

Oneh.

Bryan Printup

-----Original Message-----

From: Kinney, Jonathan [<mailto:Jonathan.Kinney@dep.state.nj.us>]  
Sent: Monday, May 12, 2014 11:17 AM  
To: Rowe, Anne M CTR USAF ANG NGB/A7AM  
Subject: RE: MOB 2 KC-46A Beddown Draft EIS (UNCLASSIFIED)

Ms. Rowe,

Thank you for the summary. Yes, I can confirm our finding of No Historic Properties Affected for the proposed undertaking at Joint Base - McGuire Dix Lakehurst. For the purposes of review pursuant to Section 106 of the National Historic Preservation Act, no additional consultation is required.

Please submit a hard copy of the building evaluation with a cover letter to our office requesting a formal concurrence with the "not eligible" determination. We will respond upon receipt of that documentation. Please let me know if you have any questions. 97-1

Jonathan Kinney  
Senior Historic Preservation Specialist

New Jersey Historic Preservation Office  
Phone: (609) 984-0141 Fax: (609) 984-0578  
Email: [jonathan.kinney@dep.state.nj.us](mailto:jonathan.kinney@dep.state.nj.us)  
Website: <http://www.nj.gov/dep/hpo>  
Mailing Address:  
Mail Code 501-04B  
Department of Environmental Protection  
Historic Preservation Office  
P.O. Box 420  
Trenton, NJ 08625-0420

-----Original Message-----

From: Rowe, Anne M CTR USAF ANG NGB/A7AM [<mailto:Anne.Rowe.ctr@ang.af.mil>]  
Sent: Tuesday, May 06, 2014 1:35 PM  
To: Kinney, Jonathan  
Subject: MOB 2 KC-46A Beddown Draft EIS (UNCLASSIFIED)

Dear Mr. Kinney,



Following is a summary of our teleconference this morning with myself and Cardno TEC staff (Teresa Rudolph, Kate Bartz, Amanda Kreider).

There was 1995 survey of McGuire AFB, which included an inventory and NRHP evaluation of all buildings and structures constructed before 1947. Although several were considered eligible, none are located within the APE. In addition, there was a follow-up survey in 1996 that included all Cold War era buildings that were less than 50 years old at the time (including Hangar 3322). No buildings were recommended as eligible to the NRHP under criteria for exceptional significance (Criterion Consideration G). In 2013, another survey was completed for Pre-1967 resources that have since become 50 years old. One such building (Building 3322 - built in 1957) was evaluated for NRHP eligibility during this survey. The results of the inventory indicated that Building 3322 is not eligible.

Although JB MDL has not yet forwarded this 2013 report to your office, it is our understanding that your office has already indicated in your response of 10/3/13 that based on your assessment of Building 3322 and the proposed internal modifications to this building, no historic properties would be affected by implementation of Alternative #2 for the KC-46A MOB2 Beddown and that Section 106 consultation was complete. Further, you indicated that despite the typographical error in the letter sent to your office dated 12 September 2013 that indicated a reference to building 3332, you did understand that to reference Building 3322.

We are enclosing a copy of the inventory and evaluation form for Building 3322 from the 2013 report. We would appreciate your formal concurrence with the determination of "not eligible" for Building 3322 and confirmation on your original assessment of "no historic properties affected".

We appreciate your time very much.

Anne M. Rowe  
Booz Allen Hamilton  
National Guard Bureau (NGB/A7AM)  
Asset Management Division  
Plans and Requirements Branch  
COMM: 240-612-8636, DSN: 612-8636  
E-mail: [anne.rowe.ctr@ang.af.mil](mailto:anne.rowe.ctr@ang.af.mil)

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## **Appendix C**

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### ***Background Information for the Noise Analysis***





## **APPENDIX C BACKGROUND INFORMATION FOR THE NOISE ANALYSIS**

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### **1. Basics of Sound**

Noise is unwanted sound. Sound is all around us; sound becomes noise when it interferes with normal activities, such as sleep or conversation.

Sound is a physical phenomenon consisting of minute vibrations that travel through a medium, such as air, and are sensed by the human ear. Whether that sound is interpreted as pleasant (e.g., music) or unpleasant (e.g., jackhammers) depends largely on the listener's current activity, past experience, and attitude toward the source of that sound.

The measurement and human perception of sound involves three basic physical characteristics: intensity, frequency, and duration. First, intensity is a measure of the acoustic energy of the sound vibrations and is expressed in terms of sound pressure. The greater the sound pressure, the more energy carried by the sound and the louder the perception of that sound. The second important physical characteristic of sound is frequency, which is the number of times per second the air vibrates or oscillates. Low-frequency sounds are characterized as rumbles or roars, while high-frequency sounds are typified by sirens or screeches. The third important characteristic of sound is duration or the length of time the sound can be detected.

The loudest sounds that can be detected comfortably by the human ear have intensities that are a trillion times higher than those of sounds that can barely be detected. Because of this vast range, using a linear scale to represent the intensity of sound becomes very unwieldy. As a result, a logarithmic unit known as the decibel (abbreviated dB) is used to represent the intensity of a sound. Such a representation is called a sound level. A sound level of 0 dB is approximately the threshold of human hearing and is barely audible under extremely quiet listening conditions. Normal speech has a sound level of approximately 60 dB; sound levels above 120 dB begin to be felt inside the human ear as discomfort. Sound levels between 130 to 140 dB are felt as pain (Berglund and Lindvall 1995).

Because of the logarithmic nature of the decibel unit, sound levels cannot be arithmetically added or subtracted and are somewhat cumbersome to handle mathematically. However, some simple rules are useful in dealing with sound levels. First, if a sound's intensity is doubled, the sound level increases by 3 dB, regardless of the initial sound level. For example:

$$60 \text{ dB} + 60 \text{ dB} = 63 \text{ dB, and}$$

$$80 \text{ dB} + 80 \text{ dB} = 83 \text{ dB}.$$

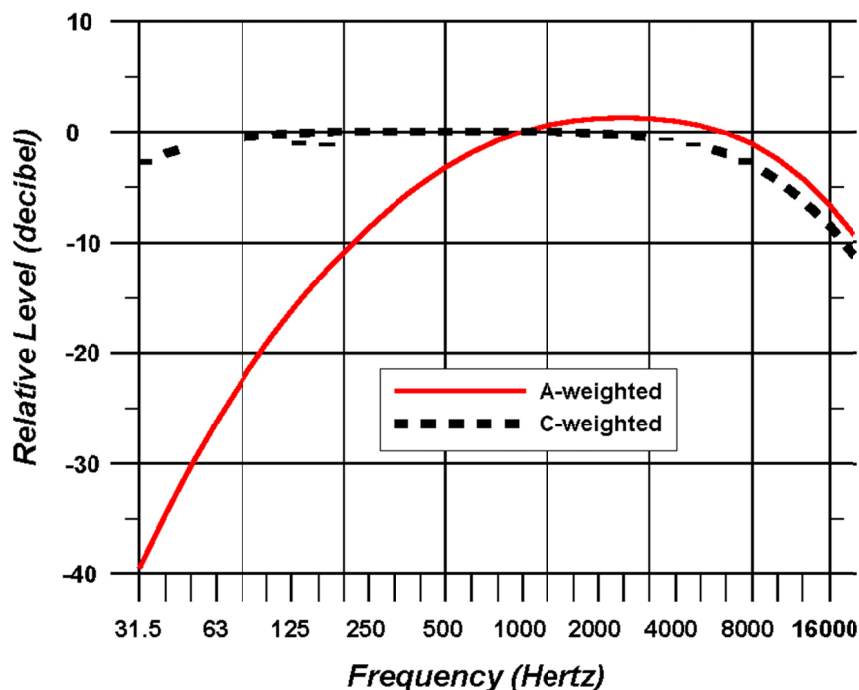
Second, the total sound level produced by two sounds of different levels is usually only slightly more than the higher of the two. For example:

$$60.0 \text{ dB} + 70.0 \text{ dB} = 70.4 \text{ dB}.$$

Because the addition of sound levels is different than that of ordinary numbers, such addition is often referred to as “decibel addition” or “energy addition.” The latter term arises from the fact that what we are really doing when we add decibel values is first converting each decibel value to its corresponding acoustic energy, then adding the energies using the normal rules of addition, and finally converting the total energy back to its decibel equivalent.

The minimum change in the sound level of individual events that an average human ear can detect is about 3 dB. On average, a person perceives a change in sound level of about 10 dB as a doubling (or halving) of the sound’s loudness, and this relation holds true for loud and quiet sounds. A decrease in sound level of 10 dB actually represents a 90 percent decrease in sound intensity but only a 50 percent decrease in perceived loudness because of the nonlinear response of the human ear (similar to most human senses).

Sound frequency is measured in terms of cycles per second (cps), or hertz (Hz), which is the standard unit for cps. The normal human ear can detect sounds that range in frequency from about 20 Hz to about 15,000 Hz. All sounds in this wide range of frequencies, however, are not heard equally by the human ear, which is most sensitive to frequencies in the 1,000 to 4,000 Hz range. Weighting curves have been developed to correspond to the sensitivity and perception of different types of sound. A-weighting and C-weighting are the two most common weightings. A-weighting accounts for frequency dependence by adjusting the very high and very low frequencies (below approximately 500 Hz and above approximately 10,000 Hz) to approximate the human ear’s lower sensitivities to those frequencies. C-weighting is nearly flat throughout the range of audible frequencies, hardly de-emphasizing the low frequency sound while approximating the human ear’s sensitivity to higher intensity sounds. The two curves shown in Figure C-1 are also the most adequate to quantify environmental noises.



Source: ANSI S1.4A -1985 "Specification of Sound Level Meters"

**Figure C-1. Frequency Response Characteristics of A- and C-Weighting Networks**

### A-weighted Sound Level

Sound levels that are measured using A-weighting, called A-weighted sound levels, are often denoted by the unit dBA or dB(A) rather than dB. When the use of A-weighting is understood, the adjective "A-weighted" is often omitted and the measurements are expressed as dB. In this report (as in most environmental impact documents), dB units refer to A-weighted sound levels.

Noise potentially becomes an issue when its intensity exceeds the ambient or background sound pressures. Ambient background noise in metropolitan, urbanized areas typically varies from 60 to 70 dB and can be as high as 80 dB or greater; quiet suburban neighborhoods experience ambient noise levels of approximately 45-50 dB (U.S. Environmental Protection Agency [USEPA] 1978).

Figure C-2 is a chart of A-weighted sound levels from typical sounds. Some noise sources (air conditioner, vacuum cleaner) are continuous sounds which levels are constant for some time. Some (automobile, heavy truck) are the maximum sound during a vehicle pass-by. Some (urban daytime, urban nighttime) are averages over extended periods. A variety of noise metrics have been developed to describe noise over different time periods, as discussed below.

Aircraft noise consists of two major types of sound events: aircraft takeoffs and landings, and engine maintenance operations. The former can be described as intermittent sounds and the latter as continuous. Noise levels from flight operations exceeding background noise typically occur beneath main approach and departure corridors, in local air traffic patterns around the airfield, and in areas immediately adjacent to parking ramps and aircraft staging areas. As aircraft in flight gain altitude, their noise contribution drops to lower levels, often becoming indistinguishable from the background.

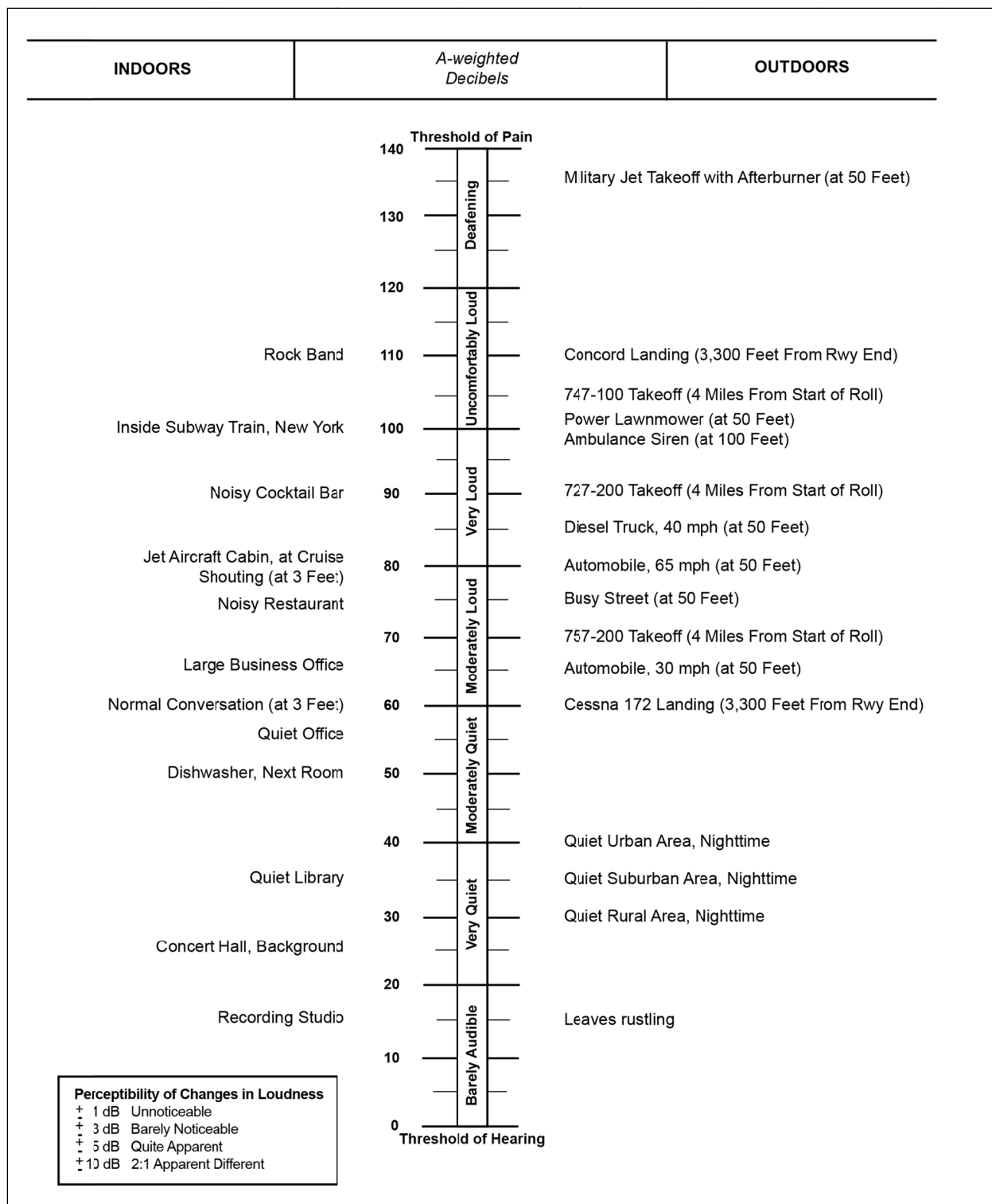
## 1.1 Noise Metrics

In general, a metric is a statistic for measuring or quantifying. A noise metric quantifies the noise environment. There are three families of noise metrics described herein – one for single noise events such as an aircraft flyby, one for cumulative noise events such as a day's worth of aircraft activity, and one which quantifies the events or time relative to single noise events.

Within the single noise event family, metrics described below include Peak Sound Pressure Level ( $L_{pk}$ ), Maximum Sound Level ( $L_{max}$ ) and Sound Exposure Level (SEL). Within the cumulative noise events family, metrics described below include Equivalent Sound Level ( $L_{eq}$ ), Day-Night Average Sound Level (DNL or  $L_{dn}$ ), and several others. Within the events/time family, metrics described below include Number of Events Above a Threshold Level and Time Above a Specified Level.

### Maximum Sound Level ( $L_{max}$ )

The highest A-weighted integrated sound level measured during a single event in which the sound level changes value with time (e.g., an aircraft overflight) is called the maximum A-weighted sound level or  $L_{max}$ .



Source: State of California Department of Transportation 2002.

**Figure C-2. Typical Decibel Level of Common Sounds**

During an aircraft overflight, the noise level starts at the ambient or background noise level, rises to the maximum level as the aircraft flies closest to the observer, and returns to the background level as the aircraft recedes into the distance. The  $L_{\max}$  indicates the maximum sound level occurring for a fraction of a second. For aircraft noise, the “fraction of a second” over which the maximum level is defined is generally one-eighth of a second, and is denoted as “fast” response (ANSI 1988). Slowly varying or steady sounds are generally measured over a period of one second, denoted “slow” response. The  $L_{\max}$  is important in judging the interference caused by a noise event with conversation, TV or radio listening, sleep, or other common activities. Although it provides some measure of the intrusiveness of the event, it does not completely describe the total event, because it does not include the period of time that the sound is heard.

### **Sound Exposure Level (SEL)**

SEL is a composite metric that represents both the intensity of a sound and its duration. Individual time-varying noise events (e.g., aircraft overflights) have two main characteristics: a sound level that changes throughout the event and a period of time during which the event is heard. SEL provides a measure of the net impact of the entire acoustic event, but it does not directly represent the sound level heard at any given time. During an aircraft flyover, SEL would include both the  $L_{\max}$  and the lower noise levels produced during onset and recess periods of the overflight.

SEL is a logarithmic measure of the total acoustic energy transmitted to the listener during the event. Mathematically, it represents the sound level of a constant sound that would, in one second, generate the same acoustic energy as the actual time-varying noise event. For sound from aircraft overflights, which typically lasts more than one second, the SEL is usually greater than the  $L_{\max}$  because an individual overflight takes seconds and the  $L_{\max}$  occurs instantaneously. SEL represents the best metric to compare noise levels from overflights.

### **Equivalent Sound Level ( $L_{eq}$ )**

A cumulative noise metric useful in describing noise is the  $L_{eq}$ .  $L_{eq}$  is the continuous sound level that would be present if all of the variations in sound level occurring over a specified time period were smoothed out as to contain the same total sound energy.

Just as SEL has proven to be a good measure of the noise impact of a single event,  $L_{eq}$  has been established to be a good measure of the impact of a series of events during a given time period. Also, while  $L_{eq}$  is defined as an average, it is effectively a sum over that time period and is, thus, a measure of the cumulative impact of noise. For example, the sum of all noise-generating events during the period of 7 a.m. to 4 p.m. could provide the relative impact of noise generating events for a school day.

## **2. Noise Effects**

This noise effects section includes discussions of annoyance, speech interference and sleep disturbance, and the effects of noise on hearing, health, performance, learning, animals, property values, terrain and archaeological sites.

### **2.1 Annoyance**

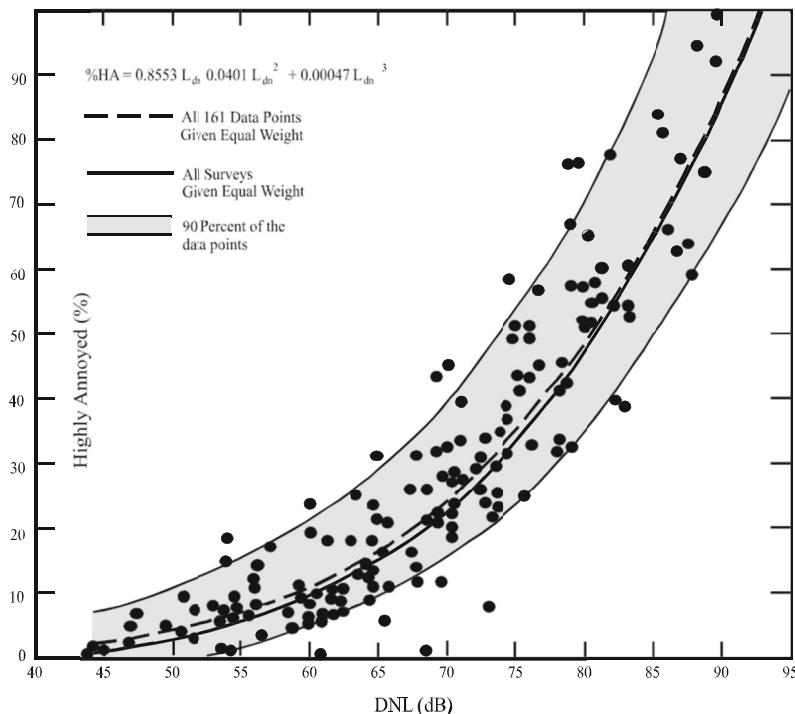
The primary effect of aircraft noise on exposed communities is one of long-term annoyance, defined by the USEPA as any negative subjective reaction on the part of an individual or group. The scientific community has adopted the use of long-term annoyance as a primary indicator of community response because it attempts to account for all negative aspects of effects from noise, e.g., increased annoyance due to being awakened the previous night by aircraft and interference with everyday conversation.

Numerous laboratory studies and field surveys have been conducted to measure annoyance and to account for a number of variables, many of which are dependent on a person's individual circumstances and preferences. Laboratory studies of individual response to noise have helped isolate a number of the factors contributing to annoyance, such as the intensity level and spectral characteristics of the noise, duration, the presence of impulses, pitch, information content, and the degree of interference with activity. Social surveys of community response to noise have allowed the development of general dose-response relationships that can be used to estimate the proportion of people who will be highly annoyed by a given noise level. The results of these studies have formed the basis for criteria established to define areas of compatible land use.

A wide variety of responses have been used to determine intrusiveness of noise and disturbances of speech, sleep, audio/video entertainment, and outdoor living; but the most useful metric for assessing peoples' responses to noise is the percentage of the population expected to be "highly annoyed." The concept of "percent highly annoyed" has provided the most consistent response of a community to a particular noise environment. In his synthesis of several different social surveys that employed different response scales, Schultz (1978) defined "highly annoyed" respondents as those respondents whose self-described annoyance fell within the upper 28 percent of the response scale where the scale was numerical or un-named. For surveys where the response scale was named, Schultz counted those who claimed to be highly annoyed, combining the responses of "very annoyed" and "extremely annoyed." Schultz's definition of "percent highly annoyed" (%HA) became the basis for the federal policy on environmental noise. Daily average sound levels are typically used for the evaluation of community noise effects, such as long-term annoyance.



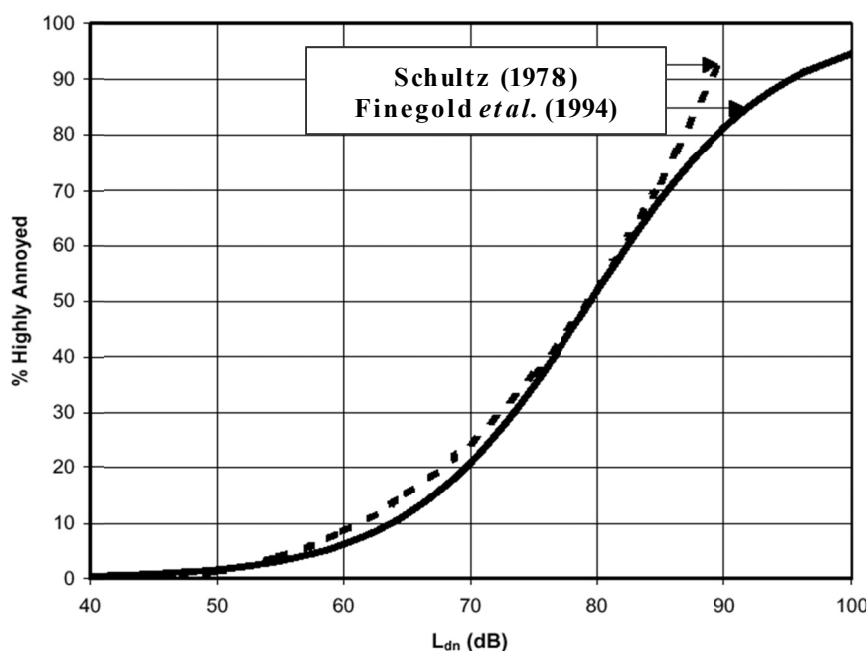
In general, scientific studies and social surveys have found a correlation between the percentages of groups of people highly annoyed and the level of average noise exposure. Thus, the results are expressed as the average %HA at various exposure levels measured in DNL. The classic analysis is Schultz's original 1978 study, whose results are shown in Figure C-3. This figure is commonly referred to as the Schultz curve. It represents the synthesis of a large number of social surveys (161 data points in all), that relates the long-term community response to various types of noise sources, measured using the DNL metric.



**Figure C-3. Community Surveys of Noise Annoyance**

An updated study of the original Schultz data based on the analysis of 400 data points collected through 1989 essentially reaffirmed this relationship. Figure C-4 shows an updated form of the curve fit in comparison with the original Schultz curve (Finegold *et al.* 1994). The updated fit, which does not differ substantially from the original, is the preferred form in the U.S. The relationship between %HA and DNL is:

$$\%HA = 100/[1 + \exp(11.13 - 0.141L_{dn})]$$



Sources: (Schultz 1978) and Current (Finegold *et al.* 1994) Curve Fits

**Figure C-4. Response of Communities to Noise; Comparison of Original**

In general, correlation coefficients of 0.85 to 0.95 are found between the percentages of groups of people highly annoyed and the level of average noise exposure. However, the correlation coefficients for the annoyance of individuals are relatively low, on the order of 0.5 or less. This is not surprising, considering the varying personal factors that influence the manner in which individuals react to noise.

A number of non-acoustic factors have been identified that may influence the annoyance response of an individual. Newman and Beattie (1985) divided these factors into emotional and physical variables.

Emotional Variables:

- Feelings about the necessity or preventability of the noise;
- Judgment of the importance and value of the activity that is producing the noise;
- Activity at the time an individual hears the noise;
- Attitude about the environment;
- General sensitivity to noise;

- Belief about the effect of noise on health; and
- Feeling of fear associated with the noise.

Physical Variables:

- Type of neighborhood;
- Time of day;
- Season;
- Predictability of noise;
- Control over the noise source; and
- Length of time an individual is exposed to a noise.

The low correlation coefficients for individuals' reactions reflect the large amount of scatter among the data drawn from the various surveys and point to the substantial uncertainty associated with the equation representing the relationship between %HA and DNL. Based on the results of surveys it has been observed that noise exposure can explain less than 50 percent of the observed variance in annoyance, indicating that non-acoustical factors play a major role. As a result, it is not possible to accurately predict individual annoyance in any specific community based on the aircraft noise exposure. Nevertheless, changes in %HA can be useful in giving the decision maker more information about the relative effects that different alternatives may have on the community.

The original Schultz curve and the subsequent updates do not separate out the annoyance from aircraft noise and other transportation noise sources. This was an important element, in that it allowed Schultz to obtain some consensus among the various social surveys from the 1960s and 1970s that were synthesized in the analysis. In essence, the Schultz curve assumes that the effects of long-term annoyance on the general population are the same, regardless of whether the noise source is road, rail, or aircraft. In the years after the classical Schultz analysis, additional social surveys have been conducted to better understand the annoyance effects of various transportation sources.

Miedema and Vos (1998) present synthesis curves for the relationship between DNL and percentage "Annoyed" and percentage "Highly Annoyed" for three transportation noise sources. Separate, non-identical curves were found for aircraft, road traffic, and railway noise. Table C-1 illustrates that, for a DNL of 65 dB, the percent of the people forecasted to be Highly Annoyed is

28 percent for air traffic, 18 percent for road traffic, and 11 percent for railroad traffic. For an outdoor DNL of 55 dB, the percent highly annoyed would be close to 12 percent if the noise is generated by aircraft operations, but only 7 percent and 4 percent, respectively, if the noise is generated by road or rail traffic. Comparing the levels on the Miedema and Vos curve to those on the updated Schultz curve indicates that the percentage of people highly annoyed by aircraft noise may be higher than previously thought when the noise is solely generated by aircraft activity.

**Table C-1. Percent Highly Annoyed for Different Transportation Noise Sources**

<i>DNL (dB)</i>	PERCENT HIGHLY ANNOYED (%HA)			
	<i>Miedema and Vos</i>			<i>Schultz Combined</i>
	<i>Air</i>	<i>Road</i>	<i>Rail</i>	
55	12	7	4	3
60	19	12	7	6
65	28	18	11	12
70	37	29	16	22
75	48	40	22	36

*Source: Miedema and Vos 1998*

As noted by the World Health Organization (WHO), even though aircraft noise seems to produce a stronger annoyance response than road traffic, caution should be exercised when interpreting synthesized data from different studies (WHO 2000). The WHO noted that five major parameters should be randomly distributed for the analyses to be valid: personal, demographic, and lifestyle factors, as well as the duration of noise exposure and the population experience with noise.

The Federal Interagency Committee on Noise (FICON) found that the updated Schultz curve remains the best available source of empirical dosage effect information to predict community response to transportation noise without any segregation by transportation source (FICON 1992); a position held by the FICAN in 1997 (FICAN 1997). However, FICON also recommended further research to investigate the differences in perceptions of aircraft noise, ground transportation noise (highways and railroads), and general background noise.

## **2.2 Speech Interference**

Speech interference associated with aircraft noise is a primary cause of annoyance for communities. The disruption of routine activities such as radio or television listening, telephone use, or family conversation gives rise to frustration and irritation. The quality of speech communication is particularly important in classrooms and offices. In industrial settings it can cause fatigue and vocal strain in those who attempt to communicate over the noise.

The disruption of speech in the classroom is a primary concern, due to the potential for adverse effects on children's learning ability. There are two aspects to speech comprehension:

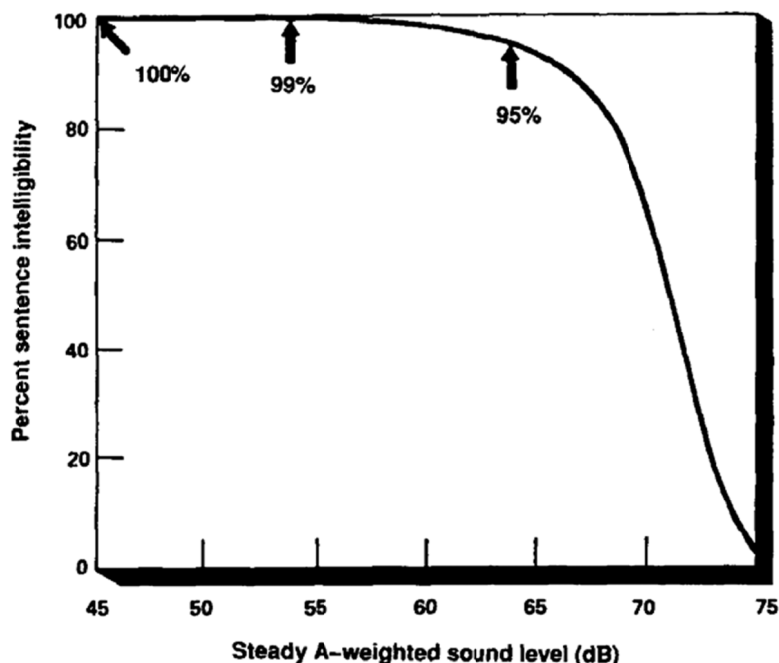
1. *Word Intelligibility* - the percent of words transmitted and received. This might be important for students in the lower grades who are learning the English language, and particularly for students who have English as a Second Language.
2. *Sentence Intelligibility* – the percent of sentences transmitted and understood. This might be important for high-school students and adults who are familiar with the language, and who do not necessarily have to understand each word in order to understand sentences.

For teachers to be clearly understood by their students, it is important that regular voice communication is clear and uninterrupted. Not only does the background sound level have to be low enough for the teacher to be clearly heard, but intermittent outdoor noise events also need to be minimized. It is therefore important to evaluate the steady background level, the level of voice communication, and the single-event level due to aircraft overflights that might interfere with speech.

Several research studies have been conducted and guideline documents been developed resulting in a fairly consistent set of noise level criteria for speech interference. This section provides an overview of the results of these studies.

### **U.S. Federal Criteria for Interior Noise**

In 1974, the USEPA identified a goal of an indoor 24-hour average sound level  $L_{eq(24)}$  of 45 dB to minimize speech interference based on the intelligibility of sentences in the presence of a steady background noise (USEPA 1974). Intelligibility pertains to the percentage of speech units correctly understood out of those transmitted, and specifies the type of speech material used, i.e., sentences or words. The curve displayed in Figure C-5 shows the effect of steady indoor background sound levels on sentence intelligibility. For an average adult with normal hearing and fluency in the language, steady background sound levels indoors of less than 45 dB  $L_{eq}$  are expected to allow 100 percent intelligibility of sentences.



Source: USEPA 1974

**Figure C-5. Speech Intelligibility Curve**

The curve shows 99 percent sentence intelligibility for background levels at a  $L_{eq}$  of 54 dB, and less than 10 percent intelligibility for background levels above a  $L_{eq}$  of 73 dB. Note that the curve is especially sensitive to changes in sound level between 65 dB and 75 dB - an increase of 1 dB in background sound level from 70 dB to 71 dB results in a 14 percent decrease in sentence intelligibility, whereas a 1 dB increase in background sound level from 60 dB to 61 dB results in less than 1 percent decrease in sentence intelligibility.

### Summary

As the previous section demonstrates, research indicates that it is not only important to consider the continuous background levels using time-averaged metrics, but also the intermittent events, using single-event metrics such as  $L_{max}$ . Table C-2 provides a summary of the noise level criteria recommended in the scientific literature.

**Table C-2. Indoor Noise Level Criteria Based on Speech Intelligibility**

<i>Source</i>	<i>Metric/Level (dB)</i>	<i>Effects and Notes</i>
FAA (1985)	$L_{eq}$ (during school hours) = 45 dB	Federal assistance criteria for school sound insulation; supplemental single-event criteria may be used
Lind <i>et al.</i> (1998), Sharp and Plotkin (1984), Wesler (1986)	$L_{max}$ = 50 dB / SIL 45	Single event level permissible in the classroom
WHO (2000)	$L_{eq}$ = 35 dB $L_{max}$ = 50 dB	Assumes average speech level of 50 dB and recommends signal to noise ratio of 15 dB
ANSI (2002)	$L_{eq}$ = 40 dB, Based on Room Volume	Acceptable background level for continuous noise/ relaxed criteria for intermittent noise in the classroom
UKDFES (2003)	$L_{eq(30min)}$ = 30-35 dB $L_{max}$ = 55 dB	Minimum acceptable in classroom and most other learning environs

When considering intermittent noise caused by aircraft overflights, a review of the relevant scientific literature and international guidelines indicates that an appropriate criteria is a limit on indoor background noise levels of 35 to 40 dB  $L_{eq}$  and a limit on single events of 50 dB  $L_{max}$ .

## 2.3 Sleep Disturbance

The disturbance of sleep is a major concern for communities exposed to nighttime aircraft noise. There have been numerous research studies that have attempted to quantify the complex effects of noise on sleep. This section provides an overview of the major noise-induced sleep disturbance studies that have been conducted, with particular emphasis placed on those studies that have influenced U.S. federal noise policy. The studies have been separated into two groups:

1. Initial studies performed in the 1960s and 1970s, where the research was focused on laboratory sleep observations.
2. Later studies performed in the 1990s up to the present, where the research was focused on field observations, and correlations to laboratory research were sought.

### 2.3.1 Initial Studies

The relationship between noise levels and sleep disturbance is complex and not fully understood. The disturbance depends not only on the depth of sleep, but also on the previous exposure to aircraft noise, familiarity with the surroundings, the physiological and psychological condition of the recipient, and a host of other situational factors. The most readily measurable effect of noise on sleep is the number of arousals or awakenings, and so the body of scientific literature has focused on predicting the percentage of the population that will be awakened at various noise levels. Fundamentally, regardless of the tools used to measure the degree of sleep disturbance

(awakenings, arousals, etc.), these studies have grouped the data points into bins to predict the percentage of the population likely to be disturbed at various sound level thresholds.

FICON produced a guidance document that provided an overview of the most pertinent sleep disturbance research that had been conducted throughout the 1970s (FICON 1992). Literature reviews and meta-analysis conducted between 1978 and 1989 made use of the existing datasets that indicated the effects of nighttime noise on various sleep-state changes and awakenings (Lukas 1978, Griefahn 1978, Pearsons *et al.* 1989). FICON noted that various indoor A-weighted sound levels ranging from 25 to 50 dB were observed to be thresholds below which significant sleep effects were not expected. Due to the large variability in the data, FICON did not endorse the reliability of the results.

However, FICON did recommend the use of an interim dose-response curve—awaiting future research—which predicted the percent of the exposed population expected to be awakened as a function of the exposure to single event noise levels expressed in terms of SEL. This curve was based on the research conducted for the U.S. Air Force (USAF) (Finegold *et al.* 1994). The dataset included most of the research performed up to that point, and predicted that 10 percent of the population would be awakened when exposed to an interior SEL of approximately 58 dB. The data utilized to derive this relationship were primarily the results of controlled laboratory studies.

### **2.3.2 Recent Sleep Disturbance Research – Field and Laboratory Studies**

It was noted in the early sleep disturbance research that the controlled laboratory studies did not account for many factors that are important to sleep behavior, such as habituation to the environment and previous exposure to noise and awakenings from sources other than aircraft noise. In the early 1990s, field studies were conducted to validate the earlier laboratory work. The most significant finding from these studies was that an estimated 80 to 90 percent of sleep disturbances were not related to individual outdoor noise events, but were instead the result of indoor noise sources and other non-noise-related factors. The results showed that there was less of an effect of noise on sleep in real-life conditions than had been previously reported from laboratory studies.

### **2.3.3 Federal Interagency Committee on Aviation Noise**

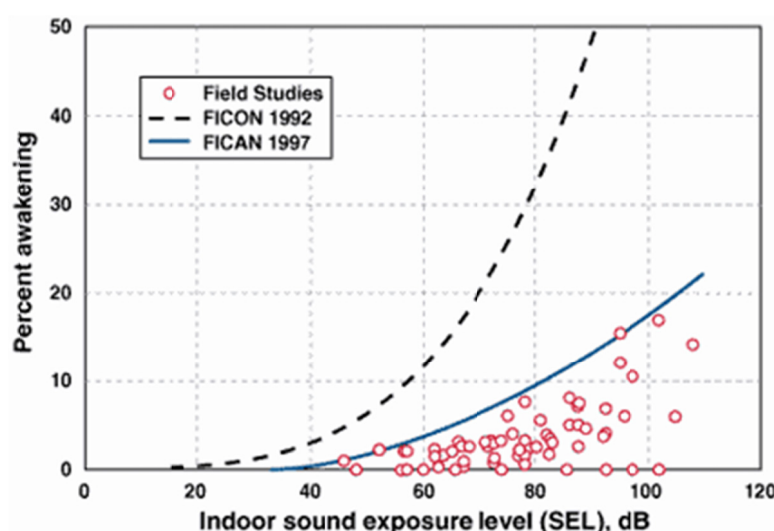
The interim FICON dose-response curve that was recommended for use in 1992 was based on the most pertinent sleep disturbance research that was conducted through the 1970s, primarily in laboratory settings. After that time, considerable field research was conducted to evaluate the sleep effects in peoples' normal, home environment. Laboratory sleep studies tend to show higher values of sleep disturbance than field studies because people who sleep in their own



homes are habituated to their environment and, therefore, do not wake up as easily (FICAN 1997).

Based on the new information, FICAN updated its recommended dose-response curve in 1997, depicted as the lower curve in Figure C-6. This figure is based on the results of three field studies (Ollerhead *et al.* 1992, Fidell *et al.* 1994, 1995a, and 1995b), along with the datasets from six previous field studies.

The new relationship represents the higher end, or upper envelope, of the latest field data. It should be interpreted as predicting the “maximum percent of the exposed population expected to be behaviorally awakened” or the “maximum percent awakened” for a given residential population. According to this relationship, a maximum of 3 percent of people would be awakened at an indoor SEL of 58 dB, compared to 10 percent using the 1992 curve. An indoor SEL of 58 dB is equivalent to outdoor SEL’s of 73 and 83 dB respectively assuming 15 and 25 dB noise level reduction from outdoor to indoor with windows open and closed, respectively.



**Figure C-6. FICAN’s 1997 Recommended Sleep Disturbance Dose-Response Relationship**

The FICAN 1997 curve is represented by the following equation:

$$\text{Percent Awakenings} = 0.0087 \times [\text{SEL} - 30]^{1.79}$$

Note the relatively low percentage of awakenings to fairly high noise levels. People think they are awakened by a noise event, but usually the reason for awakening is otherwise. For example, the 1992 United Kingdom Civil Aviation Authority study found the average person was awakened about 18 times per night for reasons other than exposure to an aircraft noise – some of

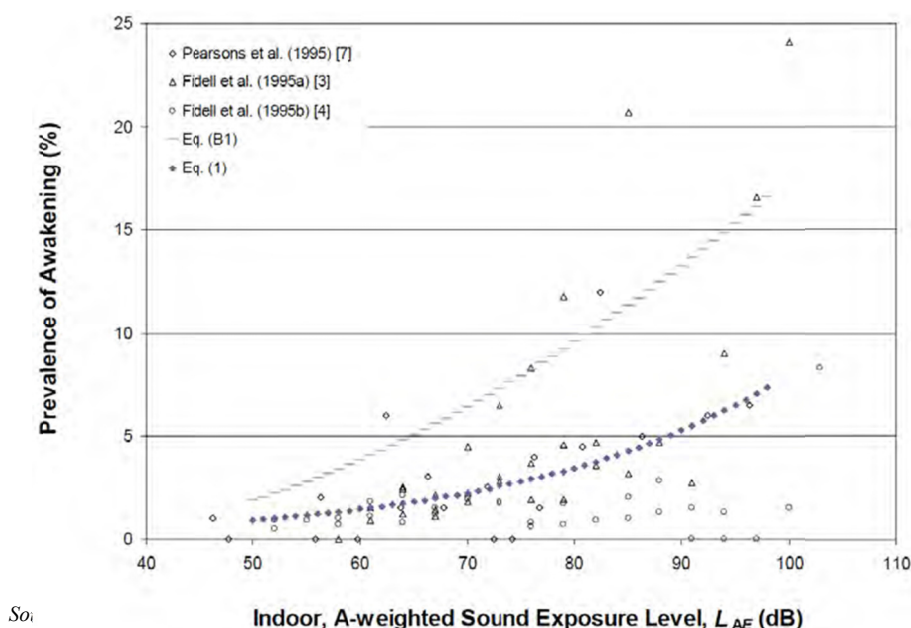
these awakenings are due to the biological rhythms of sleep and some to other reasons that were not correlated with specific aircraft events.

### **2.3.4 Number of Events and Awakenings**

In recent years, there have been studies and one proposal that attempted to determine the effect of multiple aircraft events on the number of awakenings. The German Aerospace Center (DLR) conducted an extensive study focused on the effects of nighttime aircraft noise on sleep and other related human performance factors (Basner 2004). The DLR study was one of the largest studies to examine the link between aircraft noise and sleep disturbance and involved both laboratory and in-home field research phases. The DLR investigators developed a dose-effect curve that predicts the number of aircraft events at various values of  $L_{\max}$  expected to produce one additional awakening over the course of a night. The dose-effect curve was based on the relationships found in the field studies.

In July 2008 ANSI and the Acoustical Society of America (ASA) published a method to estimate the percent of the exposed population that might be awakened by multiple aircraft noise events based on statistical assumptions about the probability of awakening (or not awakening) (ANSI 2008). This method relies on probability theory rather than direct field research/experimental data to account for multiple events.

Figure C-7 depicts the awakenings data that form the basis and equations of ANSI S12.9-2008. The curve labeled ‘Eq. (B1)’ is the relationship between noise and awakening endorsed by FICAN in 1997. The ANSI recommended curve labeled ‘Eq. (1)’ quantifies the probability of awakening for a population of sleepers who are exposed to an outdoor noise event as a function of the associated indoor SEL in the bedroom. This curve was derived from studies of behavioral awakenings associated with noise events in “steady state” situations where the population has been exposed to the noise long enough to be habituated. The data points in Figure B-7 come from these studies. Unlike the FICAN curve, the ANSI 2008 curve represents the average of the field research data points.



**Figure C-7. Plot of Sleep Awakening Data versus Indoor SEL**

In December 2008, FICAN recommended the use of this new estimation procedure for future analyses of behavioral awakenings from aircraft noise. In that statement, FICAN also recognized that additional sleep disturbance research is underway by various research organizations, and results of that work may result in additional changes to FICAN's position. Until that time, FICAN recommends the use of ANSI S12.9-2008.

## 2.4 Noise-Induced Hearing Impairment

This section provides a brief overview of hearing loss caused by noise exposure. The goal is to provide a sense of perspective as to how aircraft noise (as experienced on the ground) compares to other activities that are often linked with hearing loss.

### 2.4.1 Hearing Threshold Shifts

Hearing loss is generally interpreted as a decrease in the ear's sensitivity or acuity to perceive sound; i.e., a shift in the hearing threshold to a higher level. This change can either be a Temporary Threshold Shift (TTS), or a Permanent Threshold Shift (PTS) (Berger *et al.* 1995).

TTS can result from exposure to loud noise over a given amount of time, yet the hearing loss is not necessarily permanent. An example of TTS might be a person attending a loud music concert. After the concert is over, the person may experience a threshold shift that may last several hours, depending upon the level and duration of exposure. While experiencing TTS, the person becomes less sensitive to low-level sounds, particularly at certain frequencies in the

speech range (typically near 4,000 Hz). Normal hearing ability eventually returns, as long as the person has enough time to recover within a relatively quiet environment.

PTS usually results from repeated exposure to high noise levels, where the ears are not given adequate time to recover from the strain and fatigue of exposure. A common example of PTS is the result of working in a loud environment such as a factory. It is important to note that a temporary shift (TTS) can eventually become permanent (PTS) over time with continuous exposure to high noise levels. Thus, even if the ear is given time to recover from TTS, repeated occurrence of TTS may eventually lead to permanent hearing loss. The point at which a TTS results in a PTS is difficult to identify and varies with a person's sensitivity.

#### **2.4.2 Criteria for Permanent Hearing Loss**

Considerable data on hearing loss have been collected and analyzed by the scientific/medical community. It has been well established that continuous exposure to high noise levels will damage human hearing (USEPA 1978). The Occupational Safety and Health Administration (OSHA) regulation of 1971 standardizes the limits on workplace noise exposure for protection from hearing loss as an average level of 90 dB over an 8-hour work period or 85 dB over a 16-hour period (the average level is based on a 5 dB decrease per doubling of exposure time) (U.S. Department of Labor 1971). Even the most protective criterion (no measurable hearing loss for the most sensitive portion of the population at the ear's most sensitive frequency, 4,000 Hz, after a 40-year exposure) is an average sound level of 70 dB over a 24-hour period.

The USEPA established 75 dB for an 8-hour exposure and 70 dB for a 24-hour exposure as the average noise level standard requisite to protect 96 percent of the population from greater than a 5 dB PTS (USEPA 1978). The National Academy of Sciences Committee on Hearing, Bioacoustics, and Biomechanics (CHABA) identified 75 dB as the minimum level at which hearing loss may occur (CHABA 1977). Finally, the WHO has concluded that environmental and leisure-time noise below an  $L_{eq(24)}$  value of 70 dB “will not cause hearing loss in the large majority of the population, even after a lifetime of exposure” (WHO 2000).

#### **2.4.3 Hearing Loss and Aircraft Noise**

The 1982 USEPA Guidelines report specifically addresses the criteria and procedures for assessing the noise-induced hearing loss in terms of the Noise-Induced Permanent Threshold Shift (NIPTS), a quantity that defines the permanent change in hearing level, or threshold, caused by exposure to noise (USEPA 1982). Numerically, the NIPTS is the change in threshold averaged over the frequencies 0.5, 1, 2, and 4 kHz that can be expected from daily exposure to noise over a normal working lifetime of 40 years, with the exposure beginning at an age of 20 years. A grand average of the NIPTS over time (40 years) and hearing sensitivity (10 to 90 percentiles of the exposed population) is termed the Average NIPTS, or Ave NIPTS

for short. The Ave NIPTS that can be expected for noise exposure as measured by the DNL metric is given in Table C-3.

**Table C-3. Ave NIPTS and 10<sup>th</sup> Percentile NIPTS as a Function of DNL**

<i>DNL</i>	<i>Ave NIPTS dB*</i>	<i>10<sup>th</sup> Percentile NIPTS dB*</i>
75-76	1.0	4.0
76-77	1.0	4.5
77-78	1.6	5.0
78-79	2.0	5.5
79-80	2.5	6.0
80-81	3.0	7.0
81-82	3.5	8.0
82-83	4.0	9.0
83-84	4.5	10.0
84-85	5.5	11.0

*Note:*\*Rounded to the nearest 0.5 dB

For example, for a noise exposure of 80 dB DNL, the expected lifetime average value of NIPTS is 2.5 dB, or 6.0 dB for the 10<sup>th</sup> percentile. Characterizing the noise exposure in terms of DNL will usually overestimate the assessment of hearing loss risk as DNL includes a 10 dB weighting factor for aircraft operations occurring between 10 p.m. and 7 a.m. If, however, flight operations between the hours of 10 p.m. and 7 a.m. account for 5 percent or less of the total 24-hour operations, the overestimation is on the order of 1.5 dB. From a civilian airport perspective, the scientific community has concluded that there is little likelihood that the resulting noise exposure from aircraft noise could result in either a temporary or permanent hearing loss. Studies on community hearing loss from exposure to aircraft flyovers near airports showed that there is no danger, under normal circumstances, of hearing loss due to aircraft noise (Newman and Beattie 1985). The USEPA criterion ( $L_{eq(24)} = 70$  dBA) can be exceeded in some areas located near airports, but that is only the case outdoors. Inside a building, where people are more likely to spend most of their time, the average noise level will be much less than 70 dBA (Eldred and von Gierke 1993). Eldred and von Gierke also report that “several studies in the U.S., Japan, and the United Kingdom have confirmed the predictions that the possibility for permanent hearing loss in communities, even under the most intense commercial take-off and landing patterns, is remote.”

With regard to military airbases, as individual aircraft noise levels are increasing with the introduction of new aircraft, a 2009 Department of Defense (DoD) policy directive requires that hearing loss risk be estimated for the at risk population, defined as the population exposed to DNL greater than or equal to 80 dB (Undersecretary of Defense for Acquisition, Technology and Logistics 2009). Specifically, DoD components are directed to “use the 80 Day-Night A-Weighted (DNL) noise contour to identify populations at the most risk of potential hearing loss.”

This does not preclude populations outside the 80 DNL contour, i.e., at lower exposure levels, from being at some degree of risk of hearing loss. However, the analysis should be restricted to populations within this contour area, including residents of on-base housing. The exposure of workers inside the base boundary area should be considered occupational and evaluated using the appropriate DoD component regulations for occupational noise exposure.

#### **2.4.4 Summary**

Aviation and typical community noise levels near airports are not comparable to the occupational or recreational noise exposures associated with hearing loss. Studies of aircraft noise levels associated with civilian airport activity have not definitively correlated permanent hearing impairment with aircraft activity. It is unlikely that airport neighbors will remain outside their homes 24 hours per day, so there is little likelihood of hearing loss below an average sound level of 75 dB DNL. Near military airbases, average noise levels above 75 dB may occur, and while new DoD policy dictates that NIPTS be evaluated, no research results to date have definitively related permanent hearing impairment to aviation noise.

### **2.5 Non-auditory Health Effects**

Nonauditory health effects of long-term noise exposure, where noise may act as a risk factor, have not been found to occur at levels below those protective against noise-induced hearing loss, described above. Most studies attempting to clarify such health effects have found that noise exposure levels established for hearing protection will also protect against any potential nonauditory health effects, at least in workplace conditions. The best scientific summary of these findings is contained in the lead paper at the National Institutes of Health Conference on Noise and Hearing Loss, held on January 22–24, 1990, in Washington, D.C., which states “The nonauditory effects of chronic noise exposure, when noise is suspected to act as one of the risk factors in the development of hypertension, cardiovascular disease, and other nervous disorders, have never been proven to occur as chronic manifestations at levels below these criteria (an average of 75 dBA for complete protection against hearing loss for an eight-hour day)” (von Gierke 1990; parenthetical wording added for clarification). At the International Congress (1988) on Noise as a Public Health Problem, most studies attempting to clarify such health effects did not find them at levels below the criteria protective of noise-induced hearing loss; and even above these criteria, results regarding such health effects were ambiguous.

Consequently, it can be concluded that establishing and enforcing exposure levels protecting against noise-induced hearing loss would not only solve the noise-induced hearing loss problem but also any potential nonauditory health effects in the work place.

Although these findings were directed specifically at noise effects in the work place, they are equally applicable to aircraft noise effects in the community environment. Research studies

regarding the nonauditory health effects of aircraft noise are ambiguous, at best, and often contradictory. Yet, even those studies which purport to find such health effects use time-average noise levels of 75 dB and higher for their research.

For example, in an often-quoted paper, two University of California at Los Angeles researchers found a relation between aircraft noise levels under the approach path to Los Angeles International Airport and increased mortality rates among the exposed residents by using an average noise exposure level greater than 75 dB for the “noise-exposed” population (Meecham and Shaw 1979). Nevertheless, three other University of California at Los Angeles professors analyzed those same data and found no relation between noise exposure and mortality rates (Frerichs *et al.* 1980).

As a second example, two other University of California at Los Angeles researchers used this same population near Los Angeles International Airport to show a higher rate of birth defects during the period of 1970 to 1972 when compared with a control group residing away from the airport (Jones and Tauscher 1978). Based on this report, a separate group at the United States Centers for Disease Control performed a more thorough study of populations near Atlanta’s Hartsfield International Airport for 1970 to 1972 and found no relation in their study of 17 identified categories of birth defects to aircraft noise levels above 65 dB (Edmonds *et al.* 1979).

A recent review of health effects, prepared by a Committee of the Health Council of The Netherlands (Committee of the Health Council of the Netherlands 1996), analyzed currently available published information on this topic. The committee concluded that the threshold for possible long-term health effects was a 16-hour (6:00 a.m. to 10:00 p.m.)  $L_{eq}$  of 70 dB. Projecting this to 24 hours and applying the 10 dB nighttime penalty used with DNL, this corresponds to DNL of about 75 dB. The study also affirmed the risk threshold for hearing loss, as discussed earlier.

In summary, there is no scientific basis for a claim that potential health effects exist for aircraft time-average sound levels below 75 dB. The potential for noise to affect physiological health, such as the cardiovascular system, has been speculated; however, no unequivocal evidence exists to support such claims (Harris 1997). Conclusions drawn from a review of health effect studies involving military low-altitude flight noise with its unusually high maximum levels and rapid rise in sound level have shown no increase in cardiovascular disease (Schwartz and Thompson 1993). Additional claims that are unsupported include flyover noise producing increased mortality rates and increases in cardiovascular death, aggravation of post-traumatic stress syndrome, increased stress, increase in admissions to mental hospitals, and adverse effects on pregnant women and the unborn fetus (Harris 1997).

### **2.5.1 Performance Effects**

The effect of noise on the performance of activities or tasks has been the subject of many studies. Some of these studies have established links between continuous high noise levels and performance loss. Noise-induced performance losses are most frequently reported in studies employing noise levels in excess of 85 dB. Little change has been found in low-noise cases. It has been cited that moderate noise levels appear to act as a stressor for more sensitive individuals performing a difficult psychomotor task.

While the results of research on the general effect of periodic aircraft noise on performance have yet to yield definitive criteria, several general trends have been noted including:

- A periodic intermittent noise is more likely to disrupt performance than a steady-state continuous noise of the same level. Flyover noise, due to its intermittent nature, might be more likely to disrupt performance than a steady-state noise of equal level.
- Noise is more inclined to affect the quality than the quantity of work.
- Noise is more likely to impair the performance of tasks that place extreme demands on the worker.

## **2.6 Noise Effects on Children**

In response to noise-specific and other environmental studies, Executive Order (EO) 13045, *Protection of Children from Environmental Health Risks and Safety Risks* (1997), requires federal agencies to ensure that policies, programs, and activities address environmental health and safety risks to identify any disproportionate risks to children.

A review of the scientific literature indicates that there has not been a tremendous amount of research in the area of aircraft noise effects on children. The research reviewed does suggest that environments with sustained high background noise can have variable effects, including noise effects on learning and cognitive abilities, and reports of various noise-related physiological changes.

### **2.6.1 Effects on Learning and Cognitive Abilities**

In 2002, ANSI refers to studies that suggest that loud and frequent background noise can affect the learning patterns of young children (ANSI 2002). ANSI provides discussion on the relationships between noise and learning, and stipulates design requirements and acoustical performance criteria for outdoor-to-indoor noise isolation. School design is directed to be cognizant of, and responsive to surrounding land uses and the shielding of outdoor noise from the indoor environment. The ANSI acoustical performance criteria for schools include the



requirement that the one-hour-average background noise level shall not exceed 35 dBA in core learning spaces smaller than 20,000 cubic feet and 40 dBA in core learning spaces with enclosed volumes exceeding 20,000 cubic feet. This would require schools be constructed such that, in quiet neighborhoods indoor noise levels are lowered by 15 to 20 dBA relative to outdoor levels. In schools near airports, indoor noise levels would have to be lowered by 35 to 45 dBA relative to outdoor levels (ANSI 2002).

The studies referenced by ANSI to support the new standard are not specific to jet aircraft noise and the potential effects on children. However, there are references to studies that have shown that children in noisier classrooms scored lower on a variety of tests. Excessive background noise or reverberation within schools causes interferences of communication and can therefore create an acoustical barrier to learning (ANSI 2002). Studies have been performed that contribute to the body of evidence emphasizing the importance of communication by way of the spoken language to the development of cognitive skills. The ability to read, write, comprehend, and maintain attentiveness, is in part, based upon whether teacher communication is consistently intelligible (ANSI 2002).

Numerous studies have shown varying degrees of effects of noise on the reading comprehension, attentiveness, puzzle-solving, and memory/recall ability of children. It is generally accepted that young children are more susceptible than adults to the effects of background noise. Because of the developmental status of young children (linguistic, cognitive, and proficiency), barriers to hearing can cause interferences or disruptions in developmental evolution.

Research on the impacts of aircraft noise, and noise in general, on the cognitive abilities of school-aged children has received more attention in recent years. Several studies suggest that aircraft noise can affect the academic performance of schoolchildren. Although many factors could contribute to learning deficits in school-aged children (e.g., socioeconomic level, home environment, diet, sleep patterns), evidence exists that suggests that chronic exposure to high aircraft noise levels can impair learning.

Specifically, elementary school children attending schools near New York City's two airports demonstrated lower reading scores than children living farther away from the flight paths (Green *et al.* 1982). Researchers have found that tasks involving central processing and language comprehension (such as reading, attention, problem solving, and memory) appear to be the most affected by noise (Evans and Lepore 1993, Hygge 1994, and Evans *et al.* 1998). It has been demonstrated that chronic exposure of first- and second-grade children to aircraft noise can result in reading deficits and impaired speech perception (i.e., the ability to hear common, low-frequency [vowel] sounds but not high frequencies [consonants] in speech) (Evans and Maxwell 1997).

The Evans and Maxwell (1997) study found that chronic exposure to aircraft noise resulted in reading deficits and impaired speech perception for first- and second-grade children. Other studies found that children residing near the LAX had more difficulty solving cognitive problems and did not perform as well as children from quieter schools in puzzle-solving and attentiveness (Bronzaft 1997, Cohen *et al.* 1980). Children attending elementary schools in high aircraft noise areas near London's Heathrow Airport demonstrated poorer reading comprehension and selective cognitive impairments (Haines *et al.* 2001a and 2001b). Similarly, a 1994 study found that students exposed to aircraft noise of approximately 76 dBA scored 20 percent lower on recall ability tests than students exposed to ambient noise of 42-44 dBA (Hygge 1994). Similar studies involving the testing of attention, memory, and reading comprehension of school children located near airports showed that their tests exhibited reduced performance results compared to those of similar groups of children who were located in quieter environments (Evans *et al.* 1998, Haines *et al.* 1998). The Haines and Stansfeld study indicated that there may be some long-term effects associated with exposure, as one-year follow-up testing still demonstrated lowered scores for children in higher noise schools (Haines *et al.* 2001a and 2001b). In contrast, a 2002 study found that although children living near the old Munich airport scored lower in standardized reading and long-term memory tests than a control group, their performance on the same tests was equal to that of the control group once the airport was closed (Hygge *et al.* 2002).

Finally, although it is recognized that there are many factors that could contribute to learning deficits in school-aged children, there is increasing awareness that chronic exposure to high aircraft noise levels may impair learning. This awareness has led the WHO and a North Atlantic Treaty Organization working group to conclude that daycare centers and schools should not be located near major sources of noise, such as highways, airports, and industrial sites (WHO 2000, North Atlantic Treaty Organization 2000).

### **2.6.2 Health Effects**

Physiological effects in children exposed to aircraft noise and the potential for health effects have also been the focus of limited investigation. Studies in the literature include examination of blood pressure levels, hormonal secretions, and hearing loss.

As a measure of stress response to aircraft noise, authors have looked at blood pressure readings to monitor children's health. Children who were chronically exposed to aircraft noise from a new airport near Munich, Germany, had modest (although significant) increases in blood pressure, significant increases in stress hormones, and a decline in quality of life (Evans *et al.* 1998). Children attending noisy schools had statistically significant average systolic and diastolic blood pressure ( $p < 0.03$ ). Systolic blood pressure means were 89.68 millimeters (mm) for children attending schools located in noisier environments compared to 86.77 mm for a

control group. Similarly, diastolic blood pressure means for the noisier environment group were 47.84 mm and 45.16 mm for the control group (Cohen *et al.* 1980).

Although the literature appears limited, studies focused on the wide range of potential effects of aircraft noise on school children have also investigated hormonal levels between groups of children exposed to aircraft noise compared to those in a control group. Specifically, two studies analyzed cortisol and urinary catecholamine levels in school children as measurements of stress response to aircraft noise (Haines *et al.* 2001b and 2001c). In both instances, there were no differences between the aircraft-noise-exposed children and the control groups.

Other studies have reported hearing losses from exposure to aircraft noise. Noise-induced hearing loss was reportedly higher in children who attended a school located under a flight path near a Taiwan airport, as compared to children at another school far away (Chen *et al.* 1997). Another study reported that hearing ability was reduced significantly in individuals who lived near an airport and were frequently exposed to aircraft noise (Chen and Chen 1993). In that study, noise exposure near the airport was reportedly uniform, with DNL greater than 75 dB and maximum noise levels of about 87 dB during overflights. Conversely, several other studies that were reviewed reported no difference in hearing ability between children exposed to high levels of airport noise and children located in quieter areas (Fisch 1977, Andrus *et al.* 1975, Wu *et al.* 1995).

## **2.7 Effects on Domestic Animals and Wildlife**

Hearing is critical to an animal's ability to react, compete, reproduce, hunt, forage, and survive in its environment. While the existing literature does include studies on possible effects of jet aircraft noise and sonic booms on wildlife, there appears to have been little concerted effort in developing quantitative comparisons of aircraft noise effects on normal auditory characteristics. Behavioral effects have been relatively well described, but the larger ecological context issues, and the potential for drawing conclusions regarding effects on populations, has not been well developed.

The relationships between potential auditory/physiological effects and species interactions with their environments are not well understood. Mancini *et al.* (1988) assert that the consequences physiological effects may have on behavioral patterns is vital to understanding the long-term effects of noise on wildlife. Questions regarding the effects (if any) on predator-prey interactions, reproductive success, and intra-inter specific behavior patterns remain.

The following discussion provides an overview of the existing literature on noise effects (particularly jet aircraft noise) on animal species. The literature reviewed here involves those

studies that have focused on the observations of the behavioral effects that jet aircraft have on animals.

A great deal of research was conducted in the 1960s and 1970s on the effects of aircraft noise on the public and the potential for adverse ecological impacts. These studies were largely completed in response to the increase in air travel and as a result of the introduction of supersonic jet aircraft. According to Mancini *et al.* (1988), the foundation of information created from that focus does not necessarily correlate or provide information specific to the impacts to wildlife in areas overflown by aircraft at supersonic speed or at low altitudes.

The abilities to hear sounds and noise and to communicate assist wildlife in maintaining group cohesiveness and survivorship. Social species communicate by transmitting calls of warning, introduction, and other types that are subsequently related to an individual's or group's responsiveness.

Animal species differ greatly in their responses to noise. Noise effects on domestic animals and wildlife are classified as primary, secondary, and tertiary. Primary effects are direct, physiological changes to the auditory system, and most likely include the masking of auditory signals. Masking is defined as the inability of an individual to hear important environmental signals that may arise from mates, predators, or prey. There is some potential that noise could disrupt a species' ability to communicate or could interfere with behavioral patterns (Mancini *et al.* 1988). Although the effects are likely temporal, aircraft noise may cause masking of auditory signals within exposed faunal communities. Animals rely on hearing to avoid predators, obtain food, and communicate with, and attract, other members of their species. Aircraft noise may mask or interfere with these functions. Other primary effects, such as ear drum rupture or temporary and permanent hearing threshold shifts, are not as likely given the subsonic noise levels produced by aircraft overflights. Secondary effects may include non-auditory effects such as stress and hypertension; behavioral modifications; interference with mating or reproduction; and impaired ability to obtain adequate food, cover, or water. Tertiary effects are the direct result of primary and secondary effects, and include population decline and habitat loss. Most of the effects of noise are mild enough that they may never be detectable as variables of change in population size or population growth against the background of normal variation (Bowles 1995). Other environmental variables (e.g., predators, weather, changing prey base, ground-based disturbance) also influence secondary and tertiary effects, and confound the ability to identify the ultimate factor in limiting productivity of a certain nest, area, or region (Smith *et al.* 1988). Overall, the literature suggests that species differ in their response to various types, durations, and sources of noise (Mancini *et al.* 1988).

Many scientific studies have investigated the effects of aircraft noise on wildlife, and some have focused on wildlife "flight" due to noise. Apparently, animal responses to aircraft are influenced

by many variables, including size, speed, proximity (both height above the ground and lateral distance), engine noise, color, flight profile, and radiated noise. The type of aircraft (e.g., fixed wing versus rotor-wing [helicopter]) and type of flight mission may also produce different levels of disturbance, with varying animal responses (Smith *et al.* 1988). Consequently, it is difficult to generalize animal responses to noise disturbances across species.

One result of the 1988 Mancini *et al.*, literature review was the conclusion that, while behavioral observation studies were relatively limited, a general behavioral reaction in animals from exposure to aircraft noise is the startle response. The intensity and duration of the startle response appears to be dependent on which species is exposed, whether there is a group or an individual, and whether there have been some previous exposures. Responses range from flight, trampling, stampeding, jumping, or running, to movement of the head in the apparent direction of the noise source. Mancini *et al.* (1988) reported that the literature indicated that avian species may be more sensitive to aircraft noise than mammals.

### **2.7.1 Domestic Animals**

Although some studies report that the effects of aircraft noise on domestic animals is inconclusive, a majority of the literature reviewed indicates that domestic animals exhibit some behavioral responses to military overflights but generally seem to habituate to the disturbances over a period of time. Mammals in particular appear to react to noise at sound levels higher than 90 dB, with responses including the startle response, freezing (i.e., becoming temporarily stationary), and fleeing from the sound source. Many studies on domestic animals suggest that some species appear to acclimate to some forms of sound disturbance (Mancini *et al.* 1988). Some studies have reported such primary and secondary effects as reduced milk production and rate of milk release, increased glucose concentrations, decreased levels of hemoglobin, increased heart rate, and a reduction in thyroid activity. These latter effects appear to represent a small percentage of the findings occurring in the existing literature.

Some reviewers have indicated that earlier studies, and claims by farmers linking adverse effects of aircraft noise on livestock, did not necessarily provide clear-cut evidence of cause and effect (Cottreau 1978). In contrast, many studies conclude that there is no evidence that aircraft overflights affect feed intake, growth, or production rates in domestic animals.

### **2.7.2 Summary**

Some physiological/behavioral responses such as increased hormonal production, increased heart rate, and reduction in milk production have been described in a small percentage of studies. A majority of the studies focusing on these types of effects have reported short-term or no effects.

The literature does suggest that common responses include the “startle” or “fright” response and, ultimately, habituation. It has been reported that the intensities and durations of the startle response decrease with the numbers and frequencies of exposures, suggesting no long-term adverse effects. The majority of the literature suggests that domestic animal species (cows, horses, chickens) and wildlife species exhibit adaptation, acclimation, and habituation after repeated exposure to jet aircraft noise.

Animal responses to aircraft noise appear to be somewhat dependent on, or influenced by, the size, shape, speed, proximity (vertical and horizontal), engine noise, color, and flight profile of planes. Helicopters also appear to induce greater intensities and durations of disturbance behavior as compared to fixed-wing aircraft. Some studies showed that animals that had been previously exposed to jet aircraft noise exhibited greater degrees of alarm and disturbance to other objects creating noise, such as boats, people, and objects blowing across the landscape. Other factors influencing response to jet aircraft noise may include wind direction, speed, and local air turbulence; landscape structures (i.e., amount and type of vegetative cover); and, in the case of bird species, whether the animals are in the incubation/nesting phase.

## **2.8 Property Values**

Property within a noise zone (or Accident Potential Zone) may be affected by the availability of federally guaranteed loans. According to U.S. Department of Housing and Urban Development (HUD), Federal Housing Administration (FHA), and Veterans Administration (VA) guidance, sites are acceptable for program assistance, subsidy, or insurance for housing in noise zones of less than 65 dB DNL, and sites are conditionally acceptable with special approvals and noise attenuation in the 65 to 75 dB DNL noise zone and the greater than 75 dB DNL noise zone. HUD’s position is that noise is not the only determining factor for site acceptability, and properties should not be rejected only because of airport influences if there is evidence of acceptability within the market and if use of the dwelling is expected to continue. Similar to the Navy’s and USAF’s Air Installation Compatible Use Zone Program, HUD, FHA, and VA recommend sound attenuation for housing in the higher noise zones and written disclosures to all prospective buyers or lessees of property within a noise zone (or Accident Potential Zone).

Newman and Beattie (1985) reviewed the literature to assess the effect of aircraft noise on property values. One paper by Nelson (1978), reviewed by Newman and Beattie, suggested a 1.8 to 2.3 percent decrease in property value per decibel at three separate airports, while at another period of time, they found only a 0.8 percent devaluation per decibel change in DNL. However, Nelson also noted a decline in noise depreciation over time which he theorized could be due to either noise sensitive people being replaced by less sensitive people or the increase in commercial value of the property near airports; both ideas were supported by Crowley (1978). Ultimately, Newman and Beattie summarized that while an effect of noise was observed, noise is

only one of the many factors that is part of a decision to move close to, or away from, an airport, but which is sometimes considered an advantage due to increased opportunities for employment or ready access to the airport itself.

More recently Fidell *et al.* (1996) studied the influences of aircraft noise on actual sale prices of residential properties in the vicinity of two military facilities and found that equations developed for one area to predict residential sale prices in areas unaffected by aircraft noise worked equally well when applied to predicting sale prices of homes in areas with aircraft noise in excess of 65 dB DNL. Thus, the model worked equally well in predicting sale prices in areas with and without aircraft noise exposure. This indicates that aircraft noise had no meaningful effect on residential property values. In some cases, the average sale prices of noise exposed properties were somewhat higher than those elsewhere in the same area. In the vicinity of Davis-Monthan Air Force Base (AFB) in Tucson, Arizona, Fidell found the homes near the AFB were much older, smaller, and in poorer condition than homes elsewhere. These factors caused the equations developed for predicting sale prices in areas further away from the base to be inapplicable with those nearer the AFB. However, again Fidell found that, similar to other researchers, differences in sale prices between homes with and without aircraft noise were frequently due to factors other than noise itself.

### **2.8.1 Noise Effects on Structures**

Normally, the most sensitive components of a structure to airborne noise are the windows and, infrequently, the plastered walls and ceilings. An evaluation of the peak sound pressures impinging on the structure is normally used to determine the possibility of damage. In general, with peak sound levels above 130 dB, there is the possibility of the excitation of structural component resonances. While certain frequencies (such as 30 Hz for window breakage) may be of more concern than other frequencies, conservatively, only sounds lasting more than one second above a sound level of 130 dB are potentially damaging to structural components (CHABA 1977).

Noise-induced structural vibration may also cause annoyance to dwelling occupants because of induced secondary vibrations, or rattling of objects within the dwelling such as hanging pictures, dishes, plaques, and bric-a-brac. Window panes may also vibrate noticeably when exposed to high levels of airborne noise. In general, such noise-induced vibrations occur at peak sound levels of 110 dB or greater. Thus, assessments of noise exposure levels for compatible land use should also be protective of noise-induced secondary vibrations.

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**Noise Modeling Input Data, Sample for  
KC-135 and KC-46A**





# Example Flight Profiles



**c**  
12.00 NM  
2,100 ft AGL  
55 % NC Variable  
200 kts

**d**  
7.00 NM  
1,878 ft AGL  
60 % NC Approach  
180 kts

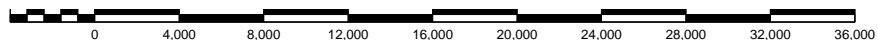
**f**  
0.00 NM  
50 ft AGL  
60 % NC Approach  
140 kts

**e**  
1.00 NM  
500 ft AGL  
60 % NC Approach  
140 kts

Flight Profile KC 135 AA

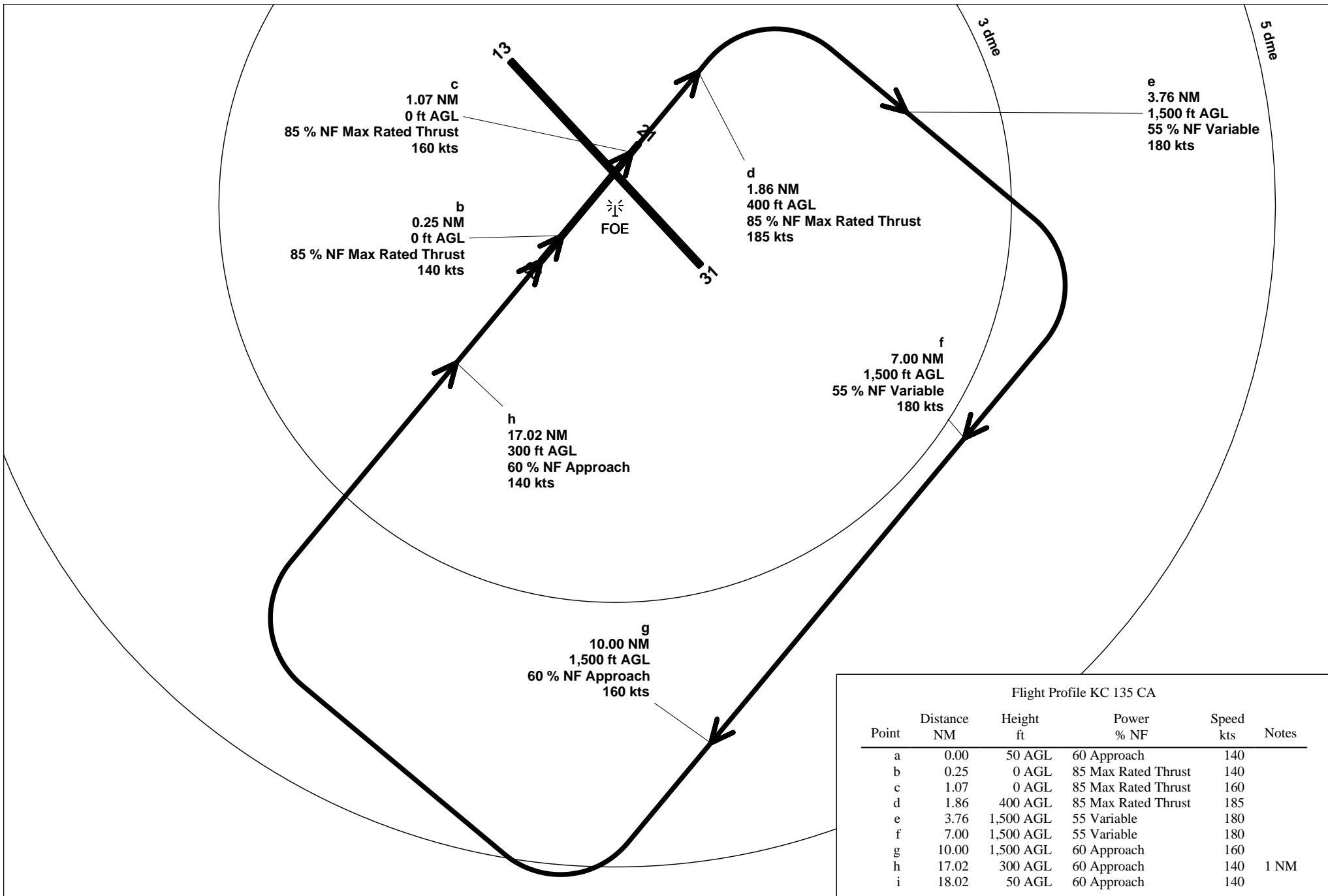
Point	Distance NM	Height ft	Power % NC	Speed kts
a	32.92	10,000 AGL	55 Variable	250
b	25.00	10,000 AGL	55 Variable	200
c	12.00	2,100 AGL	55 Variable	200
d	7.00	1,878 AGL	60 Approach	180
e	1.00	500 AGL	60 Approach	140
f	0.00	50 AGL	60 Approach	140

Flight Profile KC 135 AA  
ST-IN FROM SOUTHWEST



Scale in Feet 1:109,000 (1 inch = 9,100 feet)





**Flight Profile KC 135 CA**  
VFR RIGHT TURNS SOUTH SIDE, (TANKER AND LARGE AIRCRAFT)

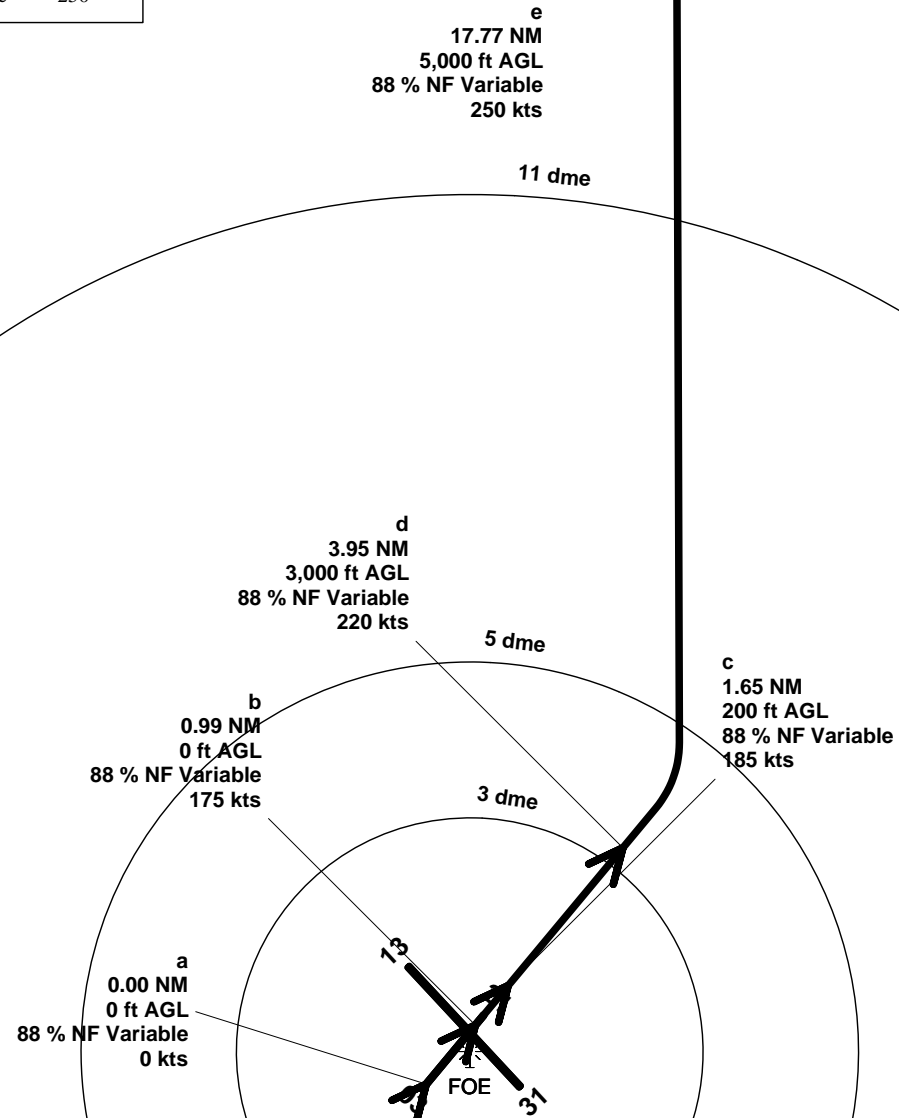


Scale in Feet 1:69,100 (1 inch = 5,760 feet)

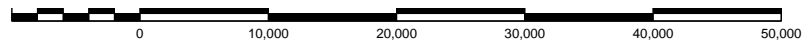


# Flight Profile KC 135 DA

Point	Distance NM	Height ft	Power % NF	Speed kts
a	0.00	0 AGL	88 Variable	0
b	0.99	0 AGL	88 Variable	175
c	1.65	200 AGL	88 Variable	185
d	3.95	3,000 AGL	88 Variable	220
e	17.77	5,000 AGL	88 Variable	250
f	38.44	10,000 AGL	88 Variable	250

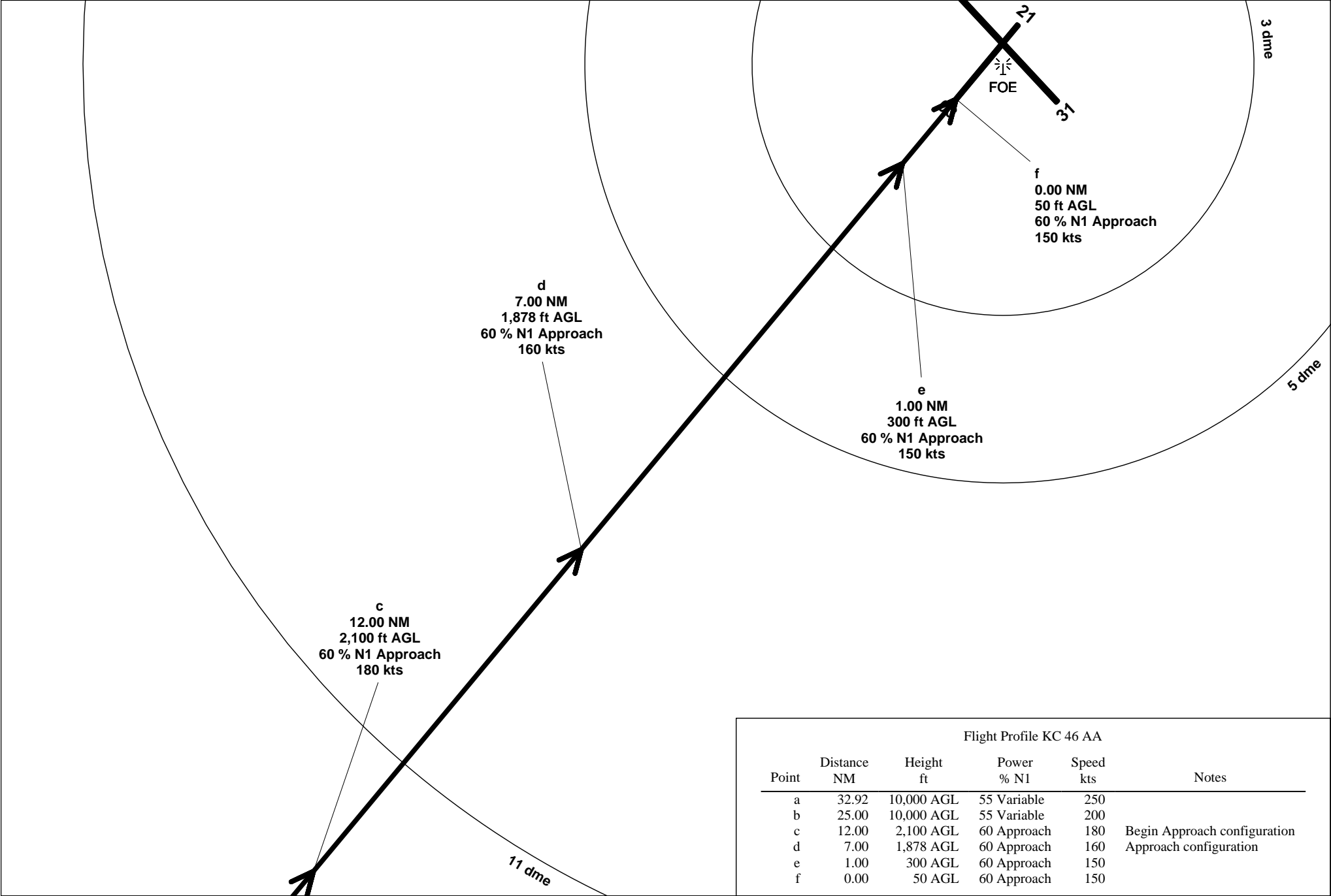


## Flight Profile KC 135 DA LEFT TURN TO NORTH

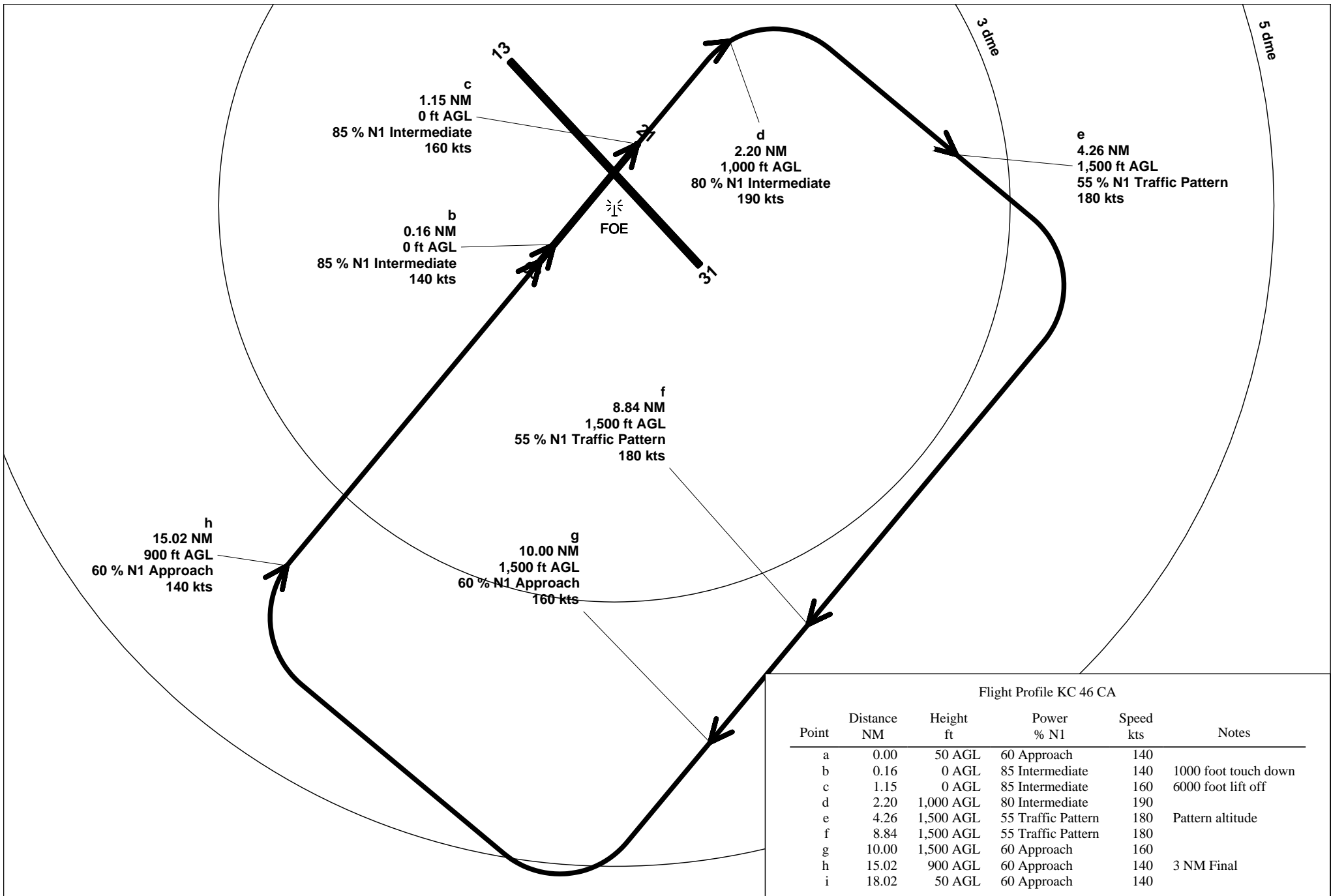


Scale in Feet 1:180,000 (1 inch = 15,000 feet)





Flight Profile KC 46 AA					
Point	Distance NM	Height ft	Power % N1	Speed kts	Notes
a	32.92	10,000 AGL	55 Variable	250	Begin Approach configuration Approach configuration
b	25.00	10,000 AGL	55 Variable	200	
c	12.00	2,100 AGL	60 Approach	180	
d	7.00	1,878 AGL	60 Approach	160	
e	1.00	300 AGL	60 Approach	150	
f	0.00	50 AGL	60 Approach	150	



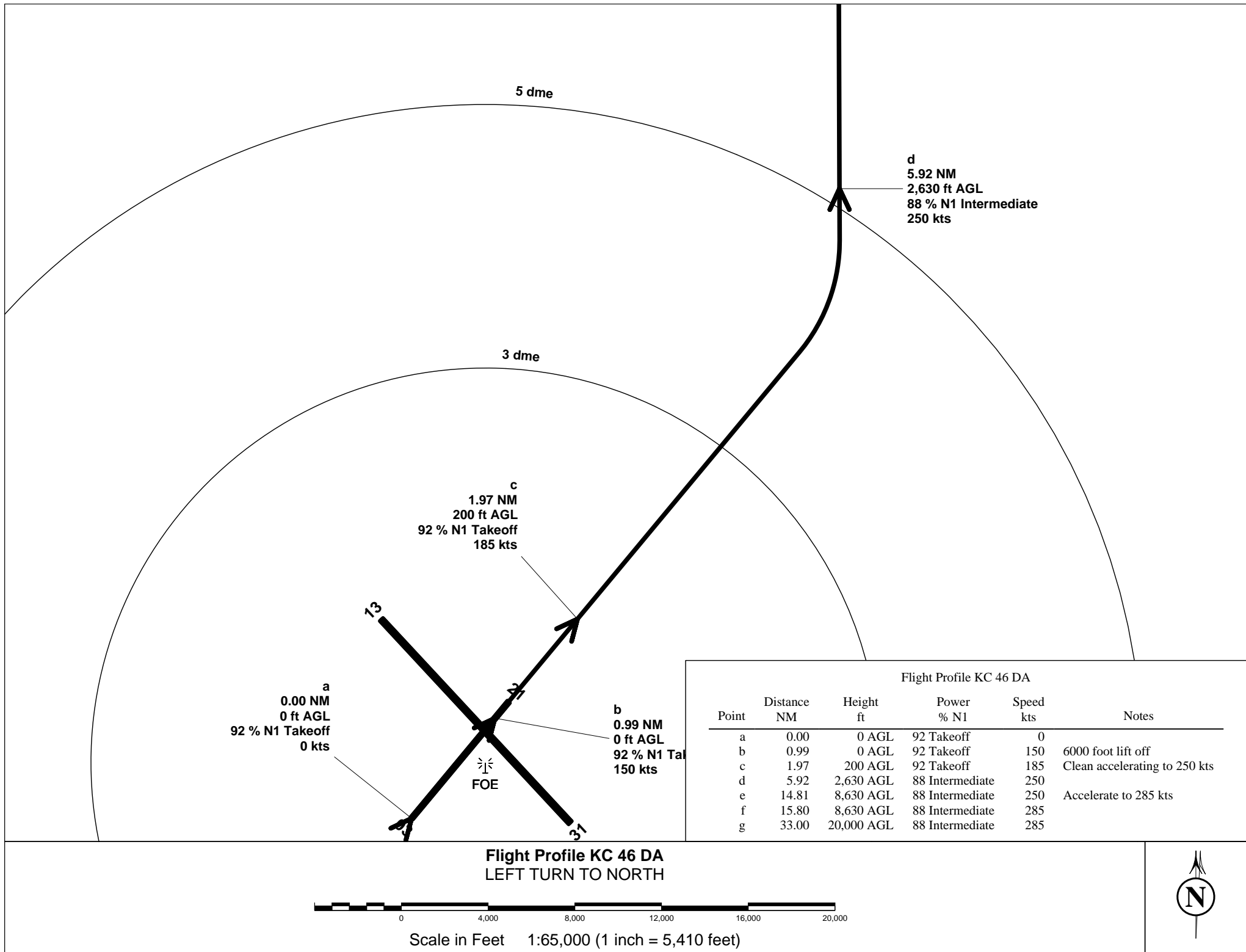
**Flight Profile KC 46 CA**  
VFR RIGHT TURNS SOUTH SIDE, (TANKER AND LARGE AIRCRAFT)



Scale in Feet 1:69,100 (1 inch = 5,760 feet)







## **Appendix D**

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### ***Air Quality***



## **TABLE OF CONTENTS**

### **APPENDIX D    AIR QUALITY**

<b>APPENDIX D1</b>	<b>AIR QUALITY BACKGROUND INFORMATION .....</b>	<b>D1-1</b>
<b>APPENDIX D2</b>	<b>CONFORMITY APPLICABILITY .....</b>	<b>D2-1</b>
<b>APPENDIX D3</b>	<b>EMISSION CALCULATIONS .....</b>	<b>D3-1</b>

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**Appendix D1**

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***Air Quality Background Information***



## APPENDIX D1 AIR QUALITY BACKGROUND INFORMATION

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This appendix provides assumptions used to calculate emissions for the Proposed Action alternatives, as well as tables showing the emission calculations. Emissions from these categories of sources were calculated based on guidance from the United States Air Force (USAF) in their *Air Emissions Guide for Air Force Mobile Sources – Methods for Estimating Emissions of Air Pollutants for Mobile Sources at U.S. Air Force Installations* (Air Force Civil Engineer Center [AFCEC] 2013), utilizing the latest air emissions modeling tools. Each category of emissions is discussed in the sections below.

### 1.0 Construction Assumptions

It was assumed that each construction project associated with the Proposed Action would be constructed in a single year, and that all construction would occur in Fiscal Year (FY) 2015. Factors needed to derive construction source emission rates were obtained from the *Compilation of Air Pollutant Emission Factors*, AP-42, Volume I (United States Environmental Protection Agency [USEPA] 1995), the USEPA NONROAD2008a model for nonroad construction equipment (USEPA 2009), and the USEPA MOVES2010b model for on-road vehicles (USEPA 2013b).

Operational emissions from sources operating in association with the Proposed Action include aircraft operations, aerospace ground equipment (AGE), engine testing, and personal vehicle use. Calculation methodologies for each emission category and assumptions used to calculate emissions for the Proposed Action alternatives are discussed below.

### 2.0 Aircraft Operations

The methodology for estimating aircraft emissions involves evaluating the type of operations for each type of aircraft, the number of hours of operation for each aircraft type, the type of engine in each aircraft, and the mode of operation for each type of aircraft engine. Aircraft emissions are calculated based on the type of aircraft, the engine model, the operational mode and time-in-mode (TIM) for each mode, the power setting associated with each operational mode, the fuel flow rate associated with each power setting, engine-specific emission factors, the mixing zone height, and the number of landing-takeoff (LTO) cycles conducted during the course of a year. As TIM and fuel flow for each power setting varies among aircraft engines and airframes, the calculation procedure was repeated for individual aircraft types.

The types of aircraft and numbers and type of operations were obtained from the installations for both existing conditions (KC-135 aircraft) and Proposed Action alternatives (KC-46A aircraft). The operational profiles from the noise modeling analysis conducted for the Proposed Action were used to calculate emissions, accounting for the mode of operation for aircraft engines, engine speed, and elevation above ground level.



As discussed in the USAF guidance document, because estimating emissions using an LTO approach accounts for exhaust emissions associated with aircraft operations occurring both on the ground and up to the mixing zone height, the choice of a mixing zone height will have a direct impact on total emissions. Mixing zone height is used to adjust the TIM during the approach and climb out modes of an LTO when calculating emissions. Thus a shallow mixing zone height will result in a shorter TIM (and fewer emissions), and a high mixing zone height will result in a longer TIM (and more emissions). While emissions occurring anywhere within this zone will impact ground-level pollutant concentrations, emissions occurring above it will generally not be mixed to the ground. Because atmospheric stability (and hence inversions) are a function of temperature, mixing zone height varies depending on location, hour, and season, and is affected by local topography, time of day, and time of year. USEPA guidance notes that in most instances where oxides of nitrogen (NO<sub>x</sub>) emissions are not a local air quality concern, a default mixing zone height of 3,000 feet can be used. If, however, NO<sub>x</sub> emissions are considered an important component of the emission inventory, specific mixing height data must be gathered and used. The Federal Aviation Administration (FAA) has adopted this USEPA default value in its recommended procedures. For purposes of maximizing the accuracy of the inventory, location specific climate and meteorological data should be used where available to determine seasonal or annual average mixing height.

For conservative purposes, the mixing height was assumed to be 3,000 feet above ground level (AGL).

Emissions were calculated for individual flight operations as follows:

$$\text{Emissions} = \text{TIM}/60 \times \text{FFR}/1000 \times \text{EI} \times \text{NE} \times \text{N}$$

Where,

TIM = Time spent in each mode (min/cycle)

60 = Factor for converting minutes into hours

FFR = Fuel flow rate per engine (lb/hr)

1000 = Factor for converting lb/hr to 1000 lb/hr

EI = Emission factor (lb/1000 lb)

NE = Number of engines/aircraft

N = number of operations

The KC-135 aircraft are equipped with four engines, and the KC-46A aircraft are equipped with two engines. Based on the flight profiles for the two aircraft provided for the noise analysis, training flight profiles would have the same TIM and same profiles.

Emission calculations for the baseline condition and Proposed Action alternatives are provided in this appendix.

### **3.0 Aircraft Ground Equipment**

AGE includes onsite mobile support equipment such as tow tractors, reciprocating engines, and gas turbines used to support aircraft operations. Based on information from the *Air Emissions Guide for Air Force Mobile Sources – Methods for Estimating Emissions of Air Pollutants for Mobile Sources at U.S. Air Force Installations* (AFCEC 2013), emissions for AGE were calculated assuming AGE usage rates per LTO from the *Air Emissions Factor Guide*.

Emission estimates for AGE are provided in this appendix.

### **4.0 Engine Testing**

Baseline emissions from on-wing engine testing were obtained from the operations shown in the Static Pad Summary. It was assumed that the number of engines tested annually would be proportional to the number of aircraft operations at each installation. Engine testing was calculated for the KC-135 engines for baseline conditions and for the KC-46A engines based on similar testing profiles, adjusting for the number of aircraft operations at the installation.

Emission estimates are provided in this appendix.

### **5.0 Ground Vehicles**

Emissions from ground vehicles were calculated using emission factors from the *Air Emissions Guide for Air Force Mobile Sources – Methods for Estimating Emissions of Air Pollutants for Mobile Sources at U.S. Air Force Installations* (AFCEC 2013). Ground vehicles operations associated with the baseline and Proposed Action alternatives were calculated based on estimates of personnel that would be associated with the Proposed Action at each installation. It was assumed that vehicles would travel 1 mile on base. The distance traveled off base was estimated based on the distance from the installation to the nearest population center (i.e., downtown metropolitan area). Emission estimates include emissions from startups, hot soak, diurnal evaporative emissions, resting loss, and running loss, as well as running exhaust emissions in grams per mile. Emission estimates are provided in this appendix.

## 6.0 References

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121<sup>st</sup> Air Refueling Wing. 2011. *Final 2009 Air Emissions Inventory, 121<sup>st</sup> ARW, Ohio National Guard, Columbus, Ohio*. June.

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190<sup>th</sup> Air Refueling Wing. 2011. *Final 2010 Air Emissions Inventory, Kansas Air National Guard, Forbes Field, Topeka, Kansas*. September.

171<sup>st</sup> Air Refueling Wing. 2013. *Final 2011 Air Emissions Inventory, 171<sup>th</sup> Air Refueling Wing, Pennsylvania Air National Guard, Pittsburgh, Pennsylvania*. January.

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## **Appendix D2**

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### ***Conformity Applicability***



## APPENDIX D2 CONFORMITY APPLICABILITY ANALYSIS

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This appendix presents the Clean Air Act (CAA) General Conformity Applicability Analysis for the KC-46A Beddown at Alternative Air National Guard (ANG) Installations.

### 1.0 BACKGROUND

The 1990 CAA Amendments revised Section 176(c) to, among other things, require the U.S. Environmental Protection Agency (USEPA) to promulgate regulations establishing the criteria and procedures for determining conformity of federal actions to the applicable State Implementation Plan (SIP) or Federal Implementation Plan. General conformity to a SIP or Federal Implementation Plan means that a Federal agency's activities will not produce new air quality violations, worsen existing violations, or delay an area's timely attainment of the National Ambient Air Quality Standards (NAAQS). On November 30, 1993, the USEPA promulgated regulations, entitled *Determining Conformity of General Federal Actions to State or Federal Implementation Plans*, that were codified at 40 Code of Federal Regulations (CFR) Part 51 Subpart W and at 40 CFR Part 93 Subpart B. The regulations at 40 CFR Part 93 were interim regulations until states amended their SIPs per the regulations in 40 CFR Part 51. In 1995, Congress added subparagraph (5) to CAA Section 176(c), limiting the section's applicability to areas designated either nonattainment or maintenance.

### 2.0 REGULATORY REQUIREMENTS

Under the provisions of 40 CFR Parts 51 and 93, Federal actions are required to conform with the approved SIP for those areas that are categorized as nonattainment or maintenance areas for any criteria pollutant. The purpose of the General Conformity Rule is to demonstrate that the Proposed Action will not cause or contribute to a violation of an air quality standard, and that the project will not adversely affect the air basin's ability to attain and maintain the ambient air quality standards.

The first step in the evaluation is to determine whether the project's emissions of nonattainment pollutants or precursors would exceed the regulatory *de minimis* thresholds established in 40 CFR 93. The following sections discuss the attainment status and General Conformity Rule requirements for each of the alternative ANG installations.

#### 2.1 190<sup>th</sup> Air Refueling Wing

Forbes Air National Guard Station (ANGS), home of the 190<sup>th</sup> Air Refueling Wing (190 ARW) of the Kansas Air National Guard (KS ANG), is located on Forbes Field Airport, approximately 5 miles south of Topeka in Shawnee County, Kansas. The USEPA has classified the state of

Kansas as an attainment/unclassified area for all criteria pollutants. The Proposed Action is therefore not subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule.

## **2.2 108<sup>th</sup> Wing**

Joint Base McGuire-Dix-Lakehurst (JB MDL) is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. The USEPA has classified the Philadelphia-Wilmington-Atlantic City area of the states of Pennsylvania, Delaware, and New Jersey as nonattainment for the ozone (O<sub>3</sub>) (marginal nonattainment) and particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>) NAAQS, and a maintenance area for carbon dioxide (CO). The region is designated attainment/unclassified area for all other criteria pollutants. The proposed action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (oxides of nitrogen [NO<sub>x</sub>] and volatile organic compounds [VOCs]) is 100 tons per year (tpy), and the *de minimis* emission thresholds for PM<sub>2.5</sub> and CO emissions are also 100 tpy.

## **2.3 157<sup>th</sup> Air Refueling Wing**

Pease ANG, home of the 157<sup>th</sup> Air Refueling Wing (157 ARW) of the New Hampshire Air National Guard (NH ANG), is located in Newington, New Hampshire approximately 1 mile west of Portsmouth, New Hampshire. The USEPA had previously classified the Boston-Manchester-Portsmouth area as a moderate nonattainment area for the 1997 O<sub>3</sub> standard. On January 31, 2013, the USEPA formally redesignated southeastern New Hampshire as an attainment area for the 1997 O<sub>3</sub> standard. The region is therefore considered a maintenance area for O<sub>3</sub>. The region is designated attainment/unclassified area for all other criteria pollutants. The proposed action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the classification for the region as a maintenance area, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (NO<sub>x</sub> and VOCs) is 100 tpy.

## **2.4 171<sup>st</sup> Air Refueling Wing**

The USEPA has classified Allegheny County as a moderate nonattainment area for the O<sub>3</sub> NAAQS, and a nonattainment area for PM<sub>2.5</sub>. Pittsburgh is also designated as a nonattainment area for CO, but this designation applies only in high traffic areas in the central business district of the city. The region is designated attainment/unclassified area for all other criteria pollutants. Alternative #4 is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub>

precursors (NO<sub>x</sub> and VOCs) is 100 tpy, and the *de minimis* emission threshold for PM<sub>2.5</sub> emissions is also 100 tpy.

## 2.5 121<sup>st</sup> Air Refueling Wing

Rickenbacker ANG is located approximately 12 miles south of downtown Columbus, Ohio in Franklin County. The USEPA has classified the Columbus area, including all of Franklin County, as nonattainment for the O<sub>3</sub> and PM<sub>2.5</sub> NAAQS. The region is designated attainment/unclassified area for all other criteria pollutants. The proposed action is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (NO<sub>x</sub> and VOCs) is 100 tpy, and the *de minimis* emission threshold for PM<sub>2.5</sub> emissions is also 100 tpy.

Table 2.5-1 summarizes the *de minimis* emission thresholds for the alternatives.

**Table 2.5-1. General Conformity *De Minimis* Thresholds, tons per year**

<i>Installation</i>	<i>VOCs</i>	<i>NO<sub>x</sub></i>	<i>CO</i>	<i>SO<sub>2</sub></i>	<i>PM<sub>10</sub></i>	<i>PM<sub>2.5</sub></i>
190 ARW – Forbes	NA	NA	NA	NA	NA	NA
108 WG – JBMDL	100	100	100	NA	NA	100
157 ARW – Pease	100	100	NA	NA	NA	NA
171 ARW – Pittsburgh	100	100	NA	NA	NA	100
121 ARW - Rickenbacker	100	100	NA	NA	NA	100

*Notes:* NA – *de minimis* threshold not applicable – installation is in attainment/unclassified area for this pollutant.

VOC = volatile organic compound; NO<sub>x</sub> = oxides of nitrogen; CO = carbon dioxide; SO<sub>2</sub> = sulfur dioxide; PM10 = particulate matter less than or equal to 10 microns in diameter; PM2.5 = particulate matter less than or equal to 2.5 microns in diameter; 190 ARW = 190<sup>th</sup> Air Refueling Wing; 108 WG = 108<sup>th</sup> Wing; 157 ARW = 157<sup>th</sup> Air Refueling Wing; 171 ARW = 171<sup>st</sup> Air Refueling Wing; 121 ARW = 121<sup>st</sup> Air Refueling Wing

## 3.0 EMISSIONS ASSOCIATED WITH THE FEDERAL ACTION

This section of the Conformity Applicability Analysis presents estimates of emissions associated with the proposed alternatives, and an evaluation of the applicability of the General Conformity Rule to the proposed alternatives.

### 3.1 190<sup>th</sup> Air Refueling Wing

Because the 190 ARW is not subject to the General Conformity Rule, the rule is not applicable and no further analysis is required.



### 3.2 108<sup>th</sup> Wing

The emissions associated with the proposed action at JBMDL include construction emissions and operational emissions. Construction emissions are summarized in Table 3.2-1. As shown in Table 3.2-1, emissions would be below the *de minimis* thresholds for all pollutants.

**Table 3.2-1. Annual Construction Emissions under Alternative #2 – 108 WG Installation**

<i>Construction Project</i>	ANNUAL EMISSIONS, TONS/YEAR			
	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>PM<sub>2.5</sub></i>
<b>Total Construction Emissions</b>	<b>8.01</b>	<b>16.11</b>	<b>2.08</b>	<b>7.23</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.2-2 presents the net annual operational emissions increase (decrease) associated with the beddown of the KC-46A aircraft at JB MDL. As shown in Table 3.2-2, emissions are below the *de minimis* thresholds for all pollutants except NO<sub>x</sub>. Emissions of NO<sub>x</sub> would exceed the *de minimis* threshold, and this alternative would therefore require a Conformity Determination under the General Conformity Rule.

**Table 3.2-2. Comparison of Baseline and Proposed Annual Operational Emissions, 108 WG**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR			
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
Aircraft Operations	3.21	49.03	83.34	0.39
AGE	0.01	0.01	0.09	0.00
Engine Tests	0.14	2.01	0.55	0.01
POVs	5.12	110.72	5.20	0.12
<b>Total</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>0.53</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
Aircraft Operations	26.19	100.37	294.03	0.96
AGE	0.01	0.02	0.17	0.01
Engine Tests	1.53	5.23	1.38	0.01
POVs	4.75	126.34	3.97	0.12
<b>Total</b>	<b>32.48</b>	<b>231.97</b>	<b>299.54</b>	<b>1.11</b>
<b>Net Increase</b>	<b>24.01</b>	<b>70.19</b>	<b>210.36</b>	<b>0.58</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; VOC = volatile organic compound

### 3.3 157<sup>th</sup> Air Refueling Wing

The emissions associated with the proposed action at Pease ANGWS include construction emissions and operational emissions. Construction emissions are summarized in Table 3.3-1. As shown in Table 3.3-1, emissions would be below the *de minimis* thresholds for all pollutants.

**Table 3.3-1. Annual Construction Emissions under Alternative #3 – 157 ARW Installation**

<i>Construction Project</i>	ANNUAL EMISSIONS, TONS/YEAR	
	<i>NO<sub>x</sub></i>	<i>VOC</i>
<b>Total Construction Emissions</b>	<b>10.99</b>	<b>1.64</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>

Table 3.3-2 presents the net annual operational emissions increase (decrease) associated with the beddown of the KC-46A aircraft at Pease ANG. As shown in Table 3.3-2, emissions would be below the *de minimis* thresholds for all pollutants. This alternative would therefore not be subject to the requirements of the General Conformity Rule for a Conformity Determination, and a Record of Non-Applicability would be prepared for this alternative.

**Table 3.3-2. Comparison of Baseline and Proposed Annual Operational Emissions, 157 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR	
	<i>VOC</i>	<i>NO<sub>x</sub></i>
Aircraft Operations	2.41	73.94
AGE	0.00	0.07
Engine Tests	0.10	0.40
POVs	1.11	0.91
<b>Total</b>	<b>3.62</b>	<b>75.32</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>NO<sub>x</sub></i>
Aircraft Operations	15.24	157.41
AGE	0.01	0.10
Engine Tests	0.77	0.71
POVs	0.91	0.70
<b>Total</b>	<b>16.93</b>	<b>158.92</b>
<b>Net Increase</b>	<b>13.31</b>	<b>83.60</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding

NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound

### 3.4 171<sup>st</sup> Air Refueling Wing

The emissions associated with the proposed action at Pittsburgh ANG. include construction emissions and operational emissions. Construction emissions are summarized in Table 3.4-1. As shown in Table 3.4-1, emissions would be below the *de minimis* thresholds for all pollutants.

**Table 3.4-1. Annual Construction Emissions under Alternative #4 – 171 ARW Installation**

<i>Construction Project</i>	ANNUAL EMISSIONS, TONS/YEAR		
	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>PM<sub>2.5</sub></i>
<b>Total Construction Emissions</b>	<b>14.68</b>	<b>1.91</b>	<b>6.60</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>

Table 3.4-2 presents the net annual operational emissions increase (decrease) associated with the beddown of the KC-46A aircraft at Pittsburgh International Airport (IAP). As shown in Table 3.4-2, emissions are below the *de minimis* thresholds for all pollutants. This alternative would

therefore not be subject to the requirements of the General Conformity Rule for a Conformity Determination, and a Record of Non-Applicability would be prepared for this alternative.

**Table 3.4-2. Comparison of Baseline and Proposed Annual Operational Emissions, 171 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR		
	<i>VOC</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
Aircraft Operations	3.42	67.79	0.33
AGE	0.01	0.10	0.00
Engine Tests	0.11	0.46	0.01
POVs	4.27	3.37	0.06
<b>Total</b>	<b>7.81</b>	<b>71.72</b>	<b>0.40</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
Aircraft Operations	20.22	158.42	0.56
AGE	0.01	0.13	0.01
Engine Tests	0.80	0.74	0.01
POVs	3.44	2.52	0.06
<b>Total</b>	<b>24.48</b>	<b>161.81</b>	<b>0.64</b>
<b>Net Increase</b>	<b>16.67</b>	<b>90.09</b>	<b>0.24</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding

NO<sub>x</sub> = oxides of nitrogen; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; VOC = volatile organic compound

### 3.5 121<sup>st</sup> Air Refueling Wing

The emissions associated with the proposed action at Rickenbacker ANGWS include construction emissions and operational emissions. Construction emissions are summarized in Table 3.5-1. As shown in Table 3.5-1, emissions would be below the *de minimis* thresholds for all pollutants.

**Table 3.5-1. Annual Construction Emissions under Alternative #5 – 121 ARW Installation**

<i>Construction Project</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>
<b>Total Construction Emissions</b>	<b>24.82</b>	<b>2.80</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>

Table 3.5-2 presents the net annual operational emissions increase (decrease) associated with the beddown of the KC-46A aircraft at Rickenbacker ANGWS. As shown in Table 3.5-2, emissions are below the *de minimis* thresholds for all pollutants. This alternative would therefore not be subject to the requirements of the General Conformity Rule for a Conformity Determination, and a Record of Non-Applicability would be prepared for this alternative.

**Table 3.5-2. Comparison of Baseline and Proposed Annual Operational Emissions,  
121 ARW**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR	
	<i>VOC</i>	<i>NO<sub>x</sub></i>
Aircraft Operations	4.63	64.35
AGE	0.01	0.15
Engine Tests	0.11	0.43
POVs	4.55	3.55
<b>Total</b>	<b>9.29</b>	<b>68.48</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>NO<sub>x</sub></i>
Aircraft Operations	21.71	123.58
AGE	0.01	0.15
Engine Tests	0.59	0.54
POVs	4.09	2.68
<b>Total</b>	<b>26.43</b>	<b>126.95</b>
<b>Net Increase</b>	<b>17.13</b>	<b>58.47</b>
<b><i>de minimis</i> Threshold</b>	<b>100</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding

NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound

In accordance with the requirements of the General Conformity Rule, a conformity determination is required for each pollutant where the total of direct and indirect emissions associated with the federal action would equal or exceed any of the *de minimis* thresholds. Should Alternative #2 be chosen as the Proposed Action, the ANG would be required to make a determination as to the conformity of emissions of NO<sub>x</sub> with the O<sub>3</sub> SIP for the air basin in which the Proposed Action occurs.

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**Appendix D3**

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***Emission Calculations***



**Forbes ANG**





**Table D3.1-1. Engine Emission Factors by Throttle Setting - KC-135 and KC-46A Aircraft**

Engine Type/Throttle Setting	Fuel Flow (Pounds/Hour)	Emission Factors, lbs/1000 lbs fuel								
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
F-108-CF-100 (2)										
Idle (9%)	1013.76	2.1045	30.7	4	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Approach (30%)	2463.12	0.092	4.2	8.2	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Intermediate (70%)	6486.48	0.0575	0.09	16	1.06	0.05	0.05	3216	8.90E-02	1.00E-01
Military (78%)	7801.2	0.046	0.09	18.5	1.06	0.07	0.07	3216	8.90E-02	1.00E-01
P&W 4062 (3)										
Idle (7%)	1,663	12.49	42.61	3.78	1.06	0.11	0.10	3,216	0.09	0.10
Approach (30%)	5,702	0.10	1.93	12.17	1.06	0.05	0.04	3,216	0.09	0.10
Climbout (80%)	16,870	0.08	0.50	25.98	1.06	0.07	0.06	3,216	0.09	0.10
Take-Off (100%)	21,622	0.09	0.61	34.36	1.06	0.08	0.07	3,216	0.09	0.10
		Emissions, Pounds/Hour								
APU Use - P&W 4062		0.04	0.33	6.72	0.56	0.05	0.04	1373		

Notes: (1) Data are for one engine. The KC-135 has 4 engines and the KC-46A has 2 engines.  
(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013).  
(3) ICAO Engine Exhaust Emissions Data Bank - Subsonic Engines - (ICAO 2013).

**Table D3.1-2. HAP Emission Factors, KC-135 and KC-46A Aircraft**

Engine Type	Emission Factor (lb/1000 lb fuel) (1)													
	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
<i>F108-CF-100</i>														
Idle	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.50E-02	0.00E+00	0.00E+00	0.00E+00	3.22E-03	6.23E-03	5.53E-04	1.61E-03	0.00E+00	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	5.58E-03	0.00E+00	0.00E+00	0.00E+00	4.25E-04	1.42E-03	0.00E+00	5.42E-04	0.00E+00	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03
<i>P&amp;W 4062 (3)</i>														
Idle	1.78E+00	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.48E-02	5.13E-03	2.94E-03	6.50E-04	2.02E-03	7.71E-04	2.09E-04	3.39E-04	3.71E-04	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	1.31E-02	4.56E-03	2.61E-03	5.78E-04	1.79E-03	6.85E-04	1.86E-04	3.01E-04	3.30E-04	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03

Notes: (1) Data are for one engine. The KC-135 has 4 engines and the KC-46A has 2 engines.  
(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013), Table 2-9.

Table D3.1-3. Land and Take-off/Touch and Go Times in Mode and Fuel Usages - KC-135 and KC-46A Aircraft

Aircraft/Mode (Engine Throttle Setting)	LTO			Touch & Go	
	Time in Mode (TIM)		Fuel Usage	TIM	Fuel Usage
	Minutes	Hours	Pounds	Hours	Pounds
<i>KC-135 (2)</i>					
Taxi Out (Idle)	32.8	0.55	2217		
Take-off (Military)	0.7	0.01	364	0.01	364
Climbout (Intermediate)	2.5	0.04	1081	0.04	1081
Approach	5.2	0.09	854	0.09	854
Taxi In (Idle)	14.9	0.25	1007		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5523</b>	<b>0.14</b>	<b>2299</b>
<i>KC-46A (2)</i>					
Taxi Out (Idle)	32.8	0.55	1818		
Take-off (Military)	0.7	0.01	505	0.01	505
Climbout (Intermediate)	2.5	0.04	1406	0.04	1406
Approach	5.2	0.09	988	0.09	988
Taxi In (Idle)	14.9	0.25	826		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5543</b>	<b>0.14</b>	<b>2899</b>
<i>APU Use, KC-46A (3)</i>		<b>Hours</b>			
Pre-Flight - OBIIGGS + Electric + Max ECS		1.50			
Pre-Flight - Main Engine Start + Electric		0.03			
Post-Flight - Electric + Min ECS		0.58			
<b>Total Hours per LTO</b>		<b>2.12</b>			

Notes: (1) Fuel usage per aircraft.

(2) TIM Data from Table 2-4, Transport Aircraft (AFCEC 2013).

(3) APU use from FTU/MOB1 Draft EIS.

Table D3.1-4. Land and Take-off/Touch and Go Total Fuel Usages and Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)								
	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours										
<i>KC-135 (2)</i>												
Taxi Out (Idle)	32.8	0.55	2217	4.67	68.05	8.87	2.35	0.13	0.13	7129.08	0.20	0.22
Take-off (Military)	0.7	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.5	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.2	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Taxi In (Idle)	14.9	0.25	1007	2.12	30.91	4.03	1.07	0.06	0.06	3238.52	0.09	0.10
<b>Totals</b>	<b>56.1</b>	<b>0.935</b>	<b>5523</b>	<b>6.94</b>	<b>102.69</b>	<b>43.93</b>	<b>5.85</b>	<b>0.32</b>	<b>0.32</b>	<b>17761.24</b>	<b>0.49</b>	<b>0.55</b>
<i>KC-46A (2)</i>												
Taxi Out (Idle)	32.8	0.55	1818	22.71	77.48	6.87	1.93	0.20	0.18	5848.08	0.16	0.18
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Taxi In (Idle)	14.9	0.25	826	10.32	35.20	3.12	0.88	0.09	0.08	2656.60	0.07	0.08
<b>Totals</b>	<b>56.1</b>	<b>0.935</b>	<b>5543</b>	<b>33.29</b>	<b>115.60</b>	<b>75.88</b>	<b>5.88</b>	<b>0.48</b>	<b>0.42</b>	<b>17826.96</b>	<b>0.49</b>	<b>0.55</b>

Aircraft/Mode	Touch and Go			Emissions (Pounds)								
	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours										
<i>KC-135 (2)</i>												
Take-off (Military)	0.70	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.50	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.20	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
<b>Totals</b>	<b>8.40</b>	<b>0.14</b>	<b>2299</b>	<b>0.16</b>	<b>3.72</b>	<b>31.03</b>	<b>2.44</b>	<b>0.13</b>	<b>0.13</b>	<b>7393.64</b>	<b>0.20</b>	<b>0.23</b>
<i>KC-46A (2)</i>												
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
<b>Totals</b>	<b>8.40</b>	<b>0.14</b>	<b>2899</b>	<b>0.26</b>	<b>2.92</b>	<b>65.89</b>	<b>3.07</b>	<b>0.19</b>	<b>0.16</b>	<b>9322.28</b>	<b>0.26</b>	<b>0.29</b>

Table D3.1-5. Land and Take-off/Touch and Go Total Fuel Usages and HAP Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)													
LTOs	Time in Mode (TIM)		Fuel Usage	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Taxi Out (Idle)	32.8	0.55	2217	0.21	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.01
Take-off (Military)	0.7	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.2	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	1007	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Totals	56.1	0.94	5523	0.33	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.31	0.02
KC-46A (2)																	
Taxi Out (Idle)	32.8	0.55	1818	3.24	1.13	0.65	0.14	0.44	0.17	0.05	0.07	0.08	0.01	0.00	0.00	0.12	0.01
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	826	1.47	0.51	0.29	0.06	0.20	0.08	0.02	0.03	0.04	0.00	0.00	0.00	0.06	0.00
Totals	56.1	0.94	5543	4.75	1.65	0.95	0.21	0.65	0.25	0.07	0.11	0.12	0.01	0.00	0.00	0.29	0.02

Aircraft/Mode	Touch and Go			Emissions (Pounds)													
Touch and Go	Time in Mode (TIM)		Fuel Usage	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours															
KC-135 (2)																	
Take-off (Military)	0.70	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.50	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.20	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2299	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
KC-46A (2)																	
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2899	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

Table D3.1-6. Annual Air Operations for Aircraft at Forbes - Baseline

	Number of Operations		
Aircraft	LTO	TGO	Total
KC-135	946	4280	10452

Table D3.1-7. KC-135 Aircraft Closed Pattern Operations at Forbes, Baseline

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)					
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	70%	73%	85%
KC-135 CA VFR Right Turns South Side	0.02334748	100	1.08073231	1.05954148	3.23876605	0.6250811	0.10721551	0.60319134
KC-135 CB VFR Right Turns Southwest Side	0.44317768	1897	1.08073231	1.05954148	3.23876605	0.6250811	0.10721551	0.60319134
KC-135 CC IFR Right Turns Southwest Side	0.01552456	66	5.90400061	2.76893508	3.98841687	0.6250811	0.10721551	0.60319134
KC-135 CC_2 IFR Right Turns Southwest Side	0.01552456	66	7.81529572	2.8536984	3.907219	0.6250811	0.10721551	0.60319134
KC-135 CD IFR Right Turns Southwest Side	0.00078836	3	5.93735654	2.82544396	6.5061229	0.6250811	0.10721551	0.60319134
KC-135 CD_2 IFR Right Turns Southwest Side	0.00078836	3	5.93735654	2.82544396	6.5061229	0.6250811	0.10721551	0.60319134
KC-135 CE VFR Left Turns South Side	0.02334748	100	1.61109169	1.44097642	1.12190307	0.6250811	0.10721551	0.60319134
KC-135 CF VFR Left Turns Southwest Side	0.44317768	1897	1.61109169	1.44097642	1.12190307	0.6250811	0.10721551	0.60319134
KC-135 CG IFR Left Turns Southwest Side	0.03104912	133	7.81529572	1.51161252	4.17139801	0.6250811	0.10721551	0.60319134
KC-135 CH IFR Left Turns Southwest Side	0.00327471	14	2.36827143	7.25432736	7.71408428	0.6250811	0.10721551	0.60319134
<b>Total Ops</b>		<b>4280</b>						

Table D3.1-8. KC-135 Aircraft Closed Pattern Operations - Fuel Use and Emission Factors, Baseline

Factor			Engine Setting					
			55%	58%	60%	70%	73%	85%
Fuel Use, lbs/hr			19910.88	20916.72	21922.56	25945.92	27589.32	31204.8
Emission Factors, lbs/1000 lbs fuel								
VOC			0.0704	0.0683	0.0661	0.0575	0.0539	0.0460
CO			1.6313	1.3744	1.1175	0.0900	0.0900	0.0900
NOx			13.0750	13.5625	14.0500	16.0000	16.7813	18.5000
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
PM2.5			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
CO2			3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.1-9. KC-135 Aircraft Closed Pattern Operations - Emissions Per Operation, Baseline

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 CA VFR Right Turns South Side			0.1614	2.4721	37.2809	2.6974	0.1393	0.1393	8183.7166	0.2265	0.2545
KC-135 CB VFR Right Turns Southwest Side			0.1614	2.4721	37.2809	2.6974	0.1393	0.1393	8183.7166	0.2265	0.2545
KC-135 CC IFR Right Turns Southwest Side			0.3329	6.2082	70.1391	5.3160	0.2713	0.2713	16128.5599	0.4463	0.5015
KC-135 CC_2 IFR Right Turns Southwest Side			0.3776	7.2503	78.4159	5.9882	0.3054	0.3054	18167.9580	0.5028	0.5649
KC-135 CD IFR Right Turns Southwest Side			0.3959	7.2813	83.4757	6.3237	0.3213	0.3213	19185.9407	0.5310	0.5966
KC-135 CD_2 IFR Right Turns Southwest Side			0.3959	7.2813	83.4757	6.3237	0.3213	0.3213	19185.9407	0.5310	0.5966
KC-135 CE VFR Left Turns South Side			0.1317	2.0776	30.5185	2.2050	0.1152	0.1152	6689.9507	0.1851	0.2080
KC-135 CF VFR Left Turns Southwest Side			0.1317	2.0776	30.5185	2.2050	0.1152	0.1152	6689.9507	0.1851	0.2080
KC-135 CG IFR Left Turns Southwest Side			0.3521	6.7151	73.4267	5.5946	0.2857	0.2857	16973.7203	0.4697	0.5278
KC-135 CH IFR Left Turns Southwest Side			0.4470	7.9644	95.1308	7.1727	0.3628	0.3628	21761.7260	0.6022	0.6767
<b>Emissions, closed pattern ops, tons/year</b>			<b>0.3440</b>	<b>5.5160</b>	<b>78.4510</b>	<b>5.7133</b>	<b>0.2958</b>	<b>0.2958</b>	<b>17333.8109</b>	<b>0.4797</b>	<b>0.5390</b>

Table D3.1-10. Annual Air Emissions for KC-135 Aircraft Operations at Forbes - Baseline

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 LTOs	3.28	48.57	20.78	2.77	0.15	0.15	8401.07	0.23	0.26
KC-135 Closed Pattern Ops	0.34	5.52	78.45	5.71	0.30	0.30	17333.81	0.48	0.54
<b>Total Existing</b>	<b>3.63</b>	<b>54.09</b>	<b>99.23</b>	<b>8.48</b>	<b>0.45</b>	<b>0.45</b>	<b>25734.88</b>	<b>0.71</b>	<b>0.80</b>

Table D3.1-11. Annual HAP Emissions for KC-135 Aircraft Operations at Forbes - Baseline

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-135 LTOs	0.16	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.01
KC-135 Closed Pattern Ops	0.05	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.20	0.01
<b>Total Existing</b>	<b>0.20</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.01</b>	<b>0.03</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.35</b>	<b>0.03</b>

Table D3.1-12. JP-8 AGE Equipment Emissions, Forbes, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-135 AGE																	
Sorties:	946																
	Hours/Sortie																
Generator AIM32A-86	10	9460.00	6.47	79036.77	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.27E+02	9.53E+00	6.13E+00	1.90E+00	1.86E+00	9.59E-01
Start Cart AIM32A-60A	1	946.00	10.16	9612.58	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	3.80E+00	1.14E+01	5.63E-01	4.40E-01	4.28E-01	1.50E-01
Start Cart AIM32A-95	0.1	94.60	8.75	827.75	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	3.07E-01	1.22E+00	1.46E-01	2.29E-02	2.23E-02	1.29E-02
Heater/AC Ace 802-993 AC	10	9460.00	6.80	145256.77	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	6.13E+01	3.13E+00	4.25E+00	4.13E+00	4.00E+00	1.00E+00
MA-3C Air Conditioner	2	1892.00	7.12	12816.77	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	1.74E+01	1.32E+00	2.21E-01	4.55E-01	4.38E-01	2.09E-01
H1	5	4730.00	0.39	1735.60	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.65E+00	1.89E+00	1.04E+00	1.14E+00	1.14E+00	3.13E-02
1H1	4	3784.00	0.39	1388.48	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.32E+00	1.51E+00	8.34E-01	9.09E-01	9.09E-01	2.50E-02
Light Cart NF-2	2	1892.00	1.02	1922.52	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	4.59E-01	3.34E-01	4.17E-02	4.17E-02	4.17E-02	3.00E-02
Air Compressor MC-1A	0.33	312.18	1.09	324.26	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	2.88E-01	1.84E-01	1.84E-01	4.89E-02	4.68E-02	5.51E-03
Total JP-8 AGE, Tons/year				hp-hrs	4480324.112							1.07E-01	1.53E-02	6.71E-03	4.54E-03	4.44E-03	1.21E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.1-13. AGE HAP Emissions, Forbes, Baseline

Pollutant	JP-8		Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)		
Arsenic	1.53E-03			
Acetaldehyde		5.40E-03	2.42E+01	7.00E-02
Acrolein		6.48E-04	2.90E+00	
Benzene	7.65E-03	6.50E-03	2.91E+01	
Beryllium	4.31E-05			
1,3-Butadiene	2.22E-03	2.74E-04	1.23E+00	
Cadmium	6.67E-04			
Chromium	1.53E-03			
Formaldehyde	3.89E-02	8.30E-03	3.72E+01	
Lead	1.95E-03			
Manganese	1.10E-01			
Mercury	1.67E-04			
Naphthalene	4.87E-03	5.94E-04	2.66E+00	
Nickel	6.39E-04			
POM	5.56E-03	1.20E-03	5.38E+00	
Selenium	3.48E-03			
Toluene		2.90E-03	1.30E+01	
Xylenes		2.00E-03	8.96E+00	
Total			1.10E-02	

Table D3.1-14. JP-8 AGE Equipment GHG Emissions, Forbes, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-135 AGE											
Sorties:	946										
	Hours/Sortie										
Generator AIM32A-86	10	9460.00	6.47	79036.77	148	2.11E+01	5.91E-04	6.80E-04	1.67E+06	4.67E+01	5.37E+01
Start Cart AIM32A-60A	1	946.00	10.16	9612.58	180	2.11E+01	5.91E-04	6.80E-04	2.03E+05	5.68E+00	6.54E+00
Start Cart AIM32A-95	0.1	94.60	8.75	827.75	155	2.11E+01	5.91E-04	6.80E-04	1.75E+04	4.89E-01	5.63E-01
Heater/AC Ace 802-993 AC	10	9460.00	6.80	145256.77	272	2.11E+01	5.91E-04	6.80E-04	3.06E+06	8.58E+01	9.88E+01
MA-3C Air Conditioner	2	1892.00	7.12	12816.77	120	2.11E+01	5.91E-04	6.80E-04	2.70E+05	7.57E+00	8.72E+00
H1	5	4730.00	0.39	1735.60	6.5	2.11E+01	5.91E-04	6.80E-04	3.66E+04	1.03E+00	1.18E+00
1H1	4	3784.00	0.39	1388.48	6.5	2.11E+01	5.91E-04	6.80E-04	2.93E+04	8.21E-01	9.44E-01
Light Cart NF-2	2	1892.00	1.02	1922.52	18	2.11E+01	5.91E-04	6.80E-04	4.06E+04	1.14E+00	1.31E+00
Air Compressor MC-1A	0.33	312.18	1.09	324.26	18.4	2.11E+01	5.91E-04	6.80E-04	6.84E+03	1.92E-01	2.20E-01
Total JP-8 AGE, Metric Tons/year									2.42E+03	6.78E-02	7.80E-02

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.



Table D3.1-15. Aircraft Engine Emissions - Engine Tests, Forbes, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-135																	
Defueling	26	Idle	0.50	1	1,014	2.1	30.7	4.0	1.1	0.1	0.1	27.73	404.59	52.72	13.97	1.61	1.61
Maintenance Run	104	Idle	0.33	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	295.84	4,315.64	562.30	149.01	17.12	17.12
TRT Run 2 Engine	12	Idle	0.17	2	1,014	2.1	30.7	4.0	1.1	0.1	0.1	8.53	124.49	16.22	4.30	0.49	0.49
	12	80% RPM	0.08	2	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.72	1.40	288.64	16.54	1.71	1.71
TRT Run 4 Engine	9	Idle	0.17	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	12.80	186.73	24.33	6.45	0.74	0.74
	9	80% RPM	0.08	4	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	1.08	2.11	432.97	24.81	2.57	2.57
												0.17	2.52	0.69	0.11	0.01	0.01

Table D3.1-16. HAP Emissions, Engine Tests, Forbes, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-135																				
Defueling	26	Idle	0.50	1	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
Maintenance Run	104	Idle	0.33	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
TRT Run 2 Engine	12	Idle	0.17	2	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	12	80% RPM	0.08	2	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
TRT Run 4 Engine	9	Idle	0.17	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	9	80% RPM	0.08	4	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
						Emissions, lbs/yr														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	Total HAPs, TPY
						1.25	0.00	0.00	0.04	0.03	0.12	0.01	0.02	0.02	0.03	0.01	0.01	0.89	0.06	
						13.37	0.00	0.00	0.41	0.27	1.26	0.10	0.23	0.21	0.32	0.13	0.14	9.49	0.68	
						0.39	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.01	0.01	0.00	0.00	0.27	0.02	
						0.11	0.00	0.00	0.00	0.02	0.02	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.04	
						0.58	0.00	0.00	0.02	0.01	0.05	0.00	0.01	0.01	0.01	0.01	0.01	0.41	0.03	
						0.16	0.00	0.00	0.00	0.03	0.03	0.00	0.01	0.00	0.03	0.01	0.01	0.05	0.06	
						0.00792974	0	0	0.000237642	0.00017734	0.0007567	5.6051E-05	0.00014176	0.00012128	0.000212308	8.13888E-05	8.87628E-05	0.00556955	0.00044463	0.01581717

Table D3.1-17. GHG Emissions, Engine Tests, Forbes, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-135											
Defueling	26	Idle	0.50	1	1,014	3,216.0	0.1	0.1	42,383.28	1.17	1.32
Maintenance Run	104	Idle	0.33	4	1,014	3,216.0	0.1	0.1	452,088.30	12.51	14.06
TRT Run 2 Engine	12	Idle	0.17	2	1,014	3,216.0	0.1	0.1	13,041.01	0.36	0.41
	12	80% RPM	0.08	2	7801.2	3,216.0	0.1	0.1	50,177.32	1.39	1.56
TRT Run 4 Engine	9	Idle	0.17	4	1,014	3,216.0	0.1	0.1	19,561.51	0.54	0.61
	9	80% RPM	0.08	4	7801.2	3,216.0	0.1	0.1	75,265.98	2.08	2.34
<b>Total, tpy</b>									<b>296</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.1-18. Annual Worker Population and VMT at Forbes - KC-46A Project Scenarios

Scenario	Total # of Workers	Annual On-Base VMT <sup>1</sup>	Annual Off-Base VMT <sup>2</sup>
Existing	945	245700	1941030
Proposed Action	1126	292760	2312804

<sup>1</sup>On-Base mileage based on 1.00 miles from 2010 AEI; total mileage obtained from AEI.<sup>2</sup>Off-Base mileage based on distance to downtown Topeka, 7.9 miles; assume 260 days/year

Table D3.1-19. Annual Average On-Road Vehicle Emission Factors - Forbes

Scenario/Vehicle Class	Emission Factors (Grams/Mile)							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	0.606	9.55	0.449	0.007	0.025	0.011	368.1
LDDT	0.03	0.132	0.808	0.2	0.003	0.053	0.037	314
LDGT	60.32	0.851	11.32	0.695	0.01	0.025	0.011	516.1
LDDT	0.2	0.393	0.708	0.46	0.006	0.06	0.044	599.2
HDGV	0	1.125	28.16	1.198	0.017	0.049	0.032	905.3
HDDV	0	0.684	2.315	3.359	0.012	0.129	0.1	1245.6
MC	1.9	3.29	27.81	0.84	0.003	0.037	0.021	177.4
Proposed Action (Year 2018) (1)								
LDGV	37.55	0.459	8.66	0.321	0.007	0.025	0.011	368
LDDT	0.03	0.087	0.692	0.088	0.003	0.038	0.023	314.1
LDGT	60.32	0.683	9.88	0.522	0.01	0.025	0.011	516.6
LDDT	0.2	0.305	0.6	0.317	0.006	0.047	0.032	598.6
HDGV	0	0.815	26.48	0.675	0.017	0.04	0.025	904
HDDV	0	0.583	1.428	1.919	0.012	0.078	0.053	1245.9
MC	1.9	3.29	27.81	0.84	0.003	0.037	0.021	177.4

Notes: (1) Emission factors from AFCEC 2013, Table 5-13, for 2017 used to provide a conservative estimate of emissions for 2018

Table D3.1-20. Annual Average On-Base Vehicle Emissions, Forbes

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	123.26	1942.47	91.33	1.42	5.09	2.24	74871.66
LDDT	0.03	0.02	0.13	0.03	0.00	0.01	0.01	51.03
LDGT	60.32	278.06	3698.70	227.08	3.27	8.17	3.59	168630.79
LDDT	0.2	0.43	0.77	0.50	0.01	0.07	0.05	649.15
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	33.86	286.22	8.65	0.03	0.38	0.22	1825.78
Total Existing, tons/year		0.22	2.96	0.16	0.00	0.01	0.00	123.01
Proposed Action (Year 2018) (1)								
LDGV	37.55	111.24	2098.82	77.80	1.70	6.06	2.67	89187.92
LDDT	0.03	0.02	0.13	0.02	0.00	0.01	0.00	60.82
LDGT	60.32	265.91	3846.51	203.23	3.89	9.73	4.28	201124.05
LDDT	0.2	0.39	0.77	0.41	0.01	0.06	0.04	772.71
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	40.35	341.04	10.30	0.04	0.45	0.26	2175.48
Total Proposed Action, tons/year		0.21	3.14	0.15	0.00	0.01	0.00	146.66

Table D3.1-21. Annual Average Off-Base Vehicle Emissions, Forbes

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	973.76	15345.54	721.48	11.25	40.17	17.68	591486.09
LDDT	0.03	0.17	1.04	0.26	0.00	0.07	0.05	403.11
LDGT	60.32	2196.64	29219.75	1793.97	25.81	64.53	28.39	1332183.25
LDDT	0.2	3.36	6.06	3.94	0.05	0.51	0.38	5128.27
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	267.50	2261.12	68.30	0.24	3.01	1.71	14423.68
Total Existing, tons/year		1.72	23.42	1.29	0.02	0.05	0.02	971.81
Proposed Action (Year 2018) (1)								
LDGV	37.55	737.55	13915.43	515.80	11.25	40.17	17.68	591325.40
LDDT	0.03	0.11	0.89	0.11	0.00	0.05	0.03	403.23
LDGT	60.32	1762.99	25502.75	1347.41	25.81	64.53	28.39	1333473.87
LDDT	0.2	2.61	5.14	2.71	0.05	0.40	0.27	5123.13
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	267.50	2261.12	68.30	0.24	3.01	1.71	14423.68
Total Proposed Action, tons/year		1.39	20.84	0.97	0.02	0.05	0.02	972.37

Table D3.1-22. Annual Air Operations for Aircraft at Forbes - Proposed Action

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-46A	1286	5995	14562

Table D3.1-23. KC-46A Aircraft Closed Pattern Operations at Forbes - KC-46A Proposed Scenarios

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)						
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	68%	73%	83%	85%
KC-46A CA VFR Right Turns South Side	0.02336246	140	1.52770185	1.04541426	2.57545944	0.66856113	0.06861792	0.3602441	0.39626852
KC-46A CB VFR Right Turns Southwest Side	0.44393009	2661	1.52770185	1.04541426	2.57545944	0.66856113	0.06861792	0.3602441	0.39626852
KC-46A CC IFR Right Turns Southwest Side	0.01553171	93	5.24755579	1.580018	4.11836013	1.16386557	0.06861792	0.39455307	0.33222512
KC-46A CC_2 IFR Right Turns Southwest Side	0.01553171	93	5.24755579	1.03333177	6.83322258	1.16386557	0.06861792	0.39455307	0.33222512
KC-46A CD IFR Right Turns Southwest Side	0.00082201	5	10.6572214	1.00489145	2.43021817	1.16386557	0.06861792	0.39455307	0.33222512
KC-46A CD_2 IFR Right Turns Southwest Side	0.00082201	5	10.6572214	1.00489145	2.43021817	1.16386557	0.06861792	0.39455307	0.33222512
KC-46A CE VFR Left Turns South Side	0.02336246	140	1.52770185	1.04541426	2.57545944	0.66856113	0.06861792	0.3602441	0.39626852
KC-46A CF VFR Left Turns Southwest Side	0.44393009	2661	1.52770185	1.04541426	2.57545944	0.66856113	0.06861792	0.3602441	0.39626852
KC-46A CG IFR Left Turns Southwest Side	0.03106342	186	5.24755579	0.52140594	6.25469204	1.16386557	0.06861792	0.39455307	0.33222512
KC-46A CH IFR Left Turns Southwest Side	0.00164403	10	9.93973526	0.96065095	2.97021433	1.16386557	0.06861792	0.39455307	0.33222512
<b>Total Ops</b>		<b>5995</b>							

Table D3.1-24. KC-46A Aircraft Closed Pattern Operations - Fuel Use and Emission Factors

Factor			Engine Setting/Time in Mode per Operation (Minutes)						
			55%	58%	60%	68%	73%	83%	85%
Fuel Use, lbs/hr			22572	23688.8	24805.6	28379.36	30389.6	34928	36116
Emission Factors, lbs/1000 lbs									
VOC			0.0920	0.0909	0.0897	0.0860	0.0840	0.0819	0.0834
CO			1.2150	1.1435	1.0720	0.8432	0.7145	0.5138	0.5275
NOx			19.0750	19.7655	20.4560	22.6656	23.9085	27.0275	28.0750
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0600	0.0610	0.0620	0.0652	0.0670	0.0713	0.0725
PM2.5			0.0500	0.0510	0.0520	0.0552	0.0570	0.0613	0.0625
CO2			3216	3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.1-25. KC-46A Aircraft Closed Pattern Operations - Emissions Per Operation

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A CA VFR Right Turns South Side			0.2531	2.8367	61.2646	3.0225	0.1809	0.1523	9170.2396	0.2538	0.2851
KC-46A CB VFR Right Turns Southwest Side			0.2531	2.8367	61.2646	3.0225	0.1809	0.1523	9170.2396	0.2538	0.2851
KC-46A CC IFR Right Turns Southwest Side			0.4768	5.6496	109.9461	5.6344	0.3311	0.2780	17094.6253	0.4731	0.5315
KC-46A CC_2 IFR Right Turns Southwest Side			0.5579	6.6060	128.6396	6.5954	0.3876	0.3254	20010.1143	0.5538	0.6222
KC-46A CD IFR Right Turns Southwest Side			0.5808	7.1145	130.0011	6.8112	0.3961	0.3319	20664.7895	0.5719	0.6426
KC-46A CD_2 IFR Right Turns Southwest Side			0.5808	7.1145	130.0011	6.8112	0.3961	0.3319	20664.7895	0.5719	0.6426
KC-46A CE VFR Left Turns South Side			0.2531	2.8367	61.2646	3.0225	0.1809	0.1523	9170.2396	0.2538	0.2851
KC-46A CF VFR Left Turns Southwest Side			0.2531	2.8367	61.2646	3.0225	0.1809	0.1523	9170.2396	0.2538	0.2851
KC-46A CG IFR Left Turns Southwest Side			0.5180	6.1185	119.7521	6.1276	0.3604	0.3026	18590.9093	0.5145	0.5781
KC-46A CH IFR Left Turns Southwest Side			0.5744	7.0059	129.0739	6.7432	0.3927	0.3291	20458.5274	0.5662	0.6361
<b>Emissions, closed pattern ops, tons/year</b>			<b>0.8111</b>	<b>9.1567</b>	<b>195.1626</b>	<b>9.6741</b>	<b>0.5776</b>	<b>0.4863</b>	<b>29350.8442</b>	<b>0.8123</b>	<b>0.9127</b>

Table D3.1-26. Annual Air Emissions for KC-46A Aircraft Operations at Forbes - Proposed Action

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A LTOs	21.40	74.33	48.79	3.78	0.31	0.27	11462.73	0.32	0.36
KC-46A T&G	0.81	9.16	195.16	9.67	0.58	0.49	29350.84	0.81	0.91
APU	0.05	0.45	9.16	0.76	0.07	0.05	1871.62	0.00	0.00
Total Proposed Action	22.27	83.94	253.12	14.22	0.95	0.81	42685.20	1.13	1.27

Table D3.1-27. Annual HAP Emissions for KC-46A Aircraft Operations at Forbes - Proposed Action

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-46A LTOs	3.06	1.06	0.61	0.13	0.42	0.16	0.04	0.07	0.08	0.01	0.00	0.00	0.19	0.01
KC-46A Closed Pattern Ops	0.11	0.04	0.02	0.00	0.02	0.01	0.00	0.00	0.00	0.01	0.01	0.01	0.35	0.03
Total Proposed Action	3.17	1.10	0.63	0.14	0.43	0.17	0.04	0.07	0.08	0.02	0.01	0.01	0.54	0.04

Table D3.1-28. JP-8 AGE Equipment Emissions, Forbes, Proposed Action

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-46A AGE																	
Sorties:	1286																
	Hours/Sortie																
Generator AIM32A-86	10	12860.00	6.47	107443.23	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.73E+02	1.30E+01	8.34E+00	2.58E+00	2.52E+00	1.30E+00
Start Cart AIM32A-60A	1	1286.00	10.16	13067.42	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	5.16E+00	1.55E+01	7.65E-01	5.98E-01	5.81E-01	2.04E-01
Start Cart AIM32A-95	0.1	128.60	8.75	1125.25	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	4.17E-01	1.66E+00	1.98E-01	3.12E-02	3.03E-02	1.75E-02
Heater/AC Ace 802-993 AC	10	12860.00	6.80	197463.23	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	8.33E+01	4.25E+00	5.78E+00	5.61E+00	5.44E+00	1.36E+00
MA-3C Air Conditioner	2	2572.00	7.12	17423.23	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	2.36E+01	1.80E+00	3.01E-01	6.18E-01	5.95E-01	2.84E-01
H1	5	6430.00	0.39	2359.40	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.24E+00	2.57E+00	1.42E+00	1.55E+00	1.55E+00	4.25E-02
1H1	4	5144.00	0.39	1887.52	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.79E+00	2.05E+00	1.13E+00	1.24E+00	1.24E+00	3.40E-02
Light Cart NF-2	2	2572.00	1.02	2613.48	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	6.24E-01	4.54E-01	5.67E-02	5.67E-02	5.67E-02	4.07E-02
Air Compressor MC-1A	0.33	424.38	1.09	440.81	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	3.92E-01	2.50E-01	2.50E-01	6.64E-02	6.36E-02	7.48E-03
Total JP-8 AGE, Tons/year				hp-hrs	6090588.592							1.45E-01	2.08E-02	9.12E-03	6.17E-03	6.04E-03	1.65E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.1-29. AGE HAP Emissions, Forbes, Proposed Action

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	3.29E+01	7.00E-02	
Acrolein		6.48E-04	3.95E+00		
Benzene	7.65E-03	6.50E-03	3.96E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.67E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	5.06E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	3.62E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	7.31E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.77E+01		
Xylenes		2.00E-03	1.22E+01		
Total			1.49E-02		

Table D3.1-30. JP-8 AGE Equipment GHG Emissions, Forbes, Proposed Action

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-46A AGE											
Sorties:	1286										
	Hours/Sortie										
Generator AIM32A-86	10	12860.00	6.47	107443.23	148	2.11E+01	5.91E-04	6.80E-04	2.27E+06	6.35E+01	7.31E+01
Start Cart AIM32A-60A	1	1286.00	10.16	13067.42	180	2.11E+01	5.91E-04	6.80E-04	2.76E+05	7.72E+00	8.89E+00
Start Cart AIM32A-95	0.1	128.60	8.75	1125.25	155	2.11E+01	5.91E-04	6.80E-04	2.37E+04	6.65E-01	7.65E-01
Heater/AC Ace 802-993 AC	10	12860.00	6.80	197463.23	272	2.11E+01	5.91E-04	6.80E-04	4.17E+06	1.17E+02	1.34E+02
MA-3C Air Conditioner	2	2572.00	7.12	17423.23	120	2.11E+01	5.91E-04	6.80E-04	3.68E+05	1.03E+01	1.18E+01
H1	5	6430.00	0.39	2359.40	6.5	2.11E+01	5.91E-04	6.80E-04	4.98E+04	1.39E+00	1.60E+00
1H1	4	5144.00	0.39	1887.52	6.5	2.11E+01	5.91E-04	6.80E-04	3.98E+04	1.12E+00	1.28E+00
Light Cart NF-2	2	2572.00	1.02	2613.48	18	2.11E+01	5.91E-04	6.80E-04	5.51E+04	1.54E+00	1.79E+00
Air Compressor MC-1A	0.33	424.38	1.09	440.81	18.4	2.11E+01	5.91E-04	6.80E-04	9.30E+03	2.61E-01	3.00E-01
Total JP-8 AGE, Metric Tons/year									3.29E+03	9.22E-02	1.06E-01

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.1-31. Aircraft Engine Emissions - Engine Tests, Proposed Action, Forbes

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-46A																	
Defueling	36	Idle	0.50	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	373.89	1,275.64	113.16	31.73	3.29	2.99
Maintenance Run	145	Idle	0.33	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	2,007.93	6,850.67	607.73	170.42	17.69	16.08
TRT Run 1 Engine	17	Idle	0.17	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	58.85	200.80	17.81	5.00	0.52	0.47
	17	80% RPM	0.08	1	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	1.92	11.95	620.89	25.33	1.67	1.43
TRT Run 2 Engine	13	Idle	0.17	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	90.01	307.10	27.24	7.64	0.79	0.72
	13	80% RPM	0.08	2	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	2.94	18.28	949.59	38.74	2.56	2.19
												1.27	4.33	1.17	0.14	0.01	0.01

Table D3.1-32. HAP Emissions, Engine Tests, Proposed Action, Forbes

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-46A																				
Defueling	36	Idle	0.50	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
Maintenance Run	145	Idle	0.33	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
TRT Run 2 Engine	17	Idle	0.17	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
	17	80% RPM	0.08	1	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
TRT Run 4 Engine	13	Idle	0.17	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
	13	80% RPM	0.08	2	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
						Emissions, lbs/yr														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	Total HAPs, TPY
						18.53	10.62	2.35	7.29	2.78	0.76	1.22	1.34	0.10	0.03	0.03	2.02	0.15	0.15	
						99.50	57.05	12.61	39.17	14.96	4.06	6.57	7.21	0.53	0.15	0.16	10.85	0.78	0.78	
						2.92	1.67	0.37	1.15	0.44	0.12	0.19	0.21	0.02	0.00	0.00	0.32	0.02	0.02	
						0.27	0.10	0.05	0.01	0.04	0.01	0.00	0.01	0.01	0.04	0.02	0.01	1.21	0.06	
						4.46	2.56	0.57	1.76	0.67	0.18	0.29	0.32	0.02	0.01	0.01	0.49	0.03	0.03	
						0.42	0.15	0.08	0.02	0.06	0.02	0.01	0.01	0.01	0.06	0.03	0.02	1.85	0.09	
						0.0630491	0.03607154	0.00801257	0.024696031	0.00947242	0.0025763	0.00414673	0.0045497	0.00034409	0.000145698	0.000122073	0.006854255	0.00202076	0.00056816	0.16262942

Table D3.1-33. GHG Emissions, Engine Tests, Proposed Action, Forbes

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-46A											
Defueling	36	Idle	0.50	1	1,663	3,216.0	0.1	0.1	96,279.32	2.66	2.99
Maintenance Run	145	Idle	0.33	2	1,663	3,216.0	0.1	0.1	517,055.62	14.31	16.08
TRT Run 2 Engine	17	Idle	0.17	1	1,663	3,216.0	0.1	0.1	15,155.08	0.42	0.47
	17	80% RPM	0.08	1	16869.6	3,216.0	0.1	0.1	76,857.90	2.13	2.39
TRT Run 4 Engine	13	Idle	0.17	2	1,663	3,216.0	0.1	0.1	23,178.36	0.64	0.72
	13	80% RPM	0.08	2	16869.6	3,216.0	0.1	0.1	117,547.37	3.25	3.66
<b>Total, tpy</b>									<b>384</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.1-34. Forbes Comparison of Emissions

Annual Emissions, tons/year						
Baseline	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	3.63	54.09	99.23	8.48	0.45	0.45
AGE	0.01	0.02	0.02	0.00	0.00	0.00
Engine Tests	0.17	2.52	0.69	0.11	0.01	0.01
POVs	1.94	26.38	1.46	0.02	0.06	0.03
<b>Total</b>	<b>5.75</b>	<b>83.00</b>	<b>101.39</b>	<b>8.61</b>	<b>0.53</b>	<b>0.49</b>
Proposed Action	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	22.27	83.94	253.12	14.22	0.95	0.81
AGE	0.01	0.02	0.02	0.00	0.01	0.01
Engine Tests	1.27	4.33	1.17	0.14	0.01	0.01
POVs	1.59	23.99	1.11	0.02	0.06	0.03
<b>Total</b>	<b>25.14</b>	<b>112.28</b>	<b>255.42</b>	<b>14.38</b>	<b>1.04</b>	<b>0.86</b>
<b>Net Increase</b>	<b>19.40</b>	<b>29.28</b>	<b>154.03</b>	<b>5.77</b>	<b>0.51</b>	<b>0.37</b>

Table D3.1-35. Forbes Comparison of HAP Emissions

Annual HAP Emissions, tons/year														
Baseline	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	0.20	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.01	0.01	0.35	0.03
AGE	0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00
<b>Total</b>	<b>0.23</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.35</b>	<b>0.03</b>
Proposed Action	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	3.17	1.10	0.63	0.14	0.43	0.17	0.04	0.07	0.08	0.02	0.01	0.01	0.54	0.04
AGE	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.06	0.04	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00
<b>Total</b>	<b>3.26</b>	<b>1.15</b>	<b>0.64</b>	<b>0.17</b>	<b>0.46</b>	<b>0.17</b>	<b>0.05</b>	<b>0.08</b>	<b>0.08</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.54</b>	<b>0.04</b>
<b>Net Increase</b>	<b>3.03</b>	<b>1.14</b>	<b>0.64</b>	<b>0.16</b>	<b>0.44</b>	<b>0.13</b>	<b>0.05</b>	<b>0.06</b>	<b>0.08</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.19</b>	<b>0.01</b>

Table D3.1-36. Forbes Comparison of GHG Emissions

Annual GHG Emissions, metric tons/year				
Baseline	CO2	CH4	N2O	CO2e
Aircraft Ops	23347	0.65	0.73	23585
AGE	2421	0.07	0.08	2446
Engine Tests	296	0.01	0.01	299
POVs	993	0.00	0.00	993
<b>Total</b>	<b>27056</b>	<b>0.72</b>	<b>0.81</b>	<b>27324</b>
Proposed Action	CO2	CH4	N2O	
Aircraft Ops	38724	1.02	1.15	39102
AGE	3291	0.09	0.11	3326
Engine Tests	384	0.01	0.01	388
POVs	1015	0.00	0.00	1015
<b>Total</b>	<b>43413</b>	<b>1.13</b>	<b>1.27</b>	<b>43831</b>
<b>Net Increase</b>	<b>16357</b>	<b>0.41</b>	<b>0.46</b>	<b>16507</b>





**JB MDL**



Table D3.2-1 Engine Emission Factors by Throttle Setting - KC-135 and KC-46A Aircraft

Engine Type/Throttle Setting	Fuel Flow (Pounds/Hour)	Emission Factors, lbs/1000 lbs fuel								
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
F-108-CF-100 (2)										
Idle	1013.76	2.1045	30.7	4	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Approach	2463.12	0.092	4.2	8.2	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Intermediate	6486.48	0.0575	0.09	16	1.06	0.05	0.05	3216	8.90E-02	1.00E-01
Military	7801.2	0.046	0.09	18.5	1.06	0.07	0.07	3216	8.90E-02	1.00E-01
P&W 4062 (3)										
Idle	1663.2	12.489	42.61	3.78	1.06	0.11	0.1	3216	8.90E-02	1.00E-01
Approach	5702.4	0.1035	1.93	12.17	1.06	0.05	0.04	3216	8.90E-02	1.00E-01
Climbout	16869.6	0.0805	0.5	25.98	1.06	0.07	0.06	3216	8.90E-02	1.00E-01
Take-Off	21621.6	0.092	0.61	34.36	1.06	0.08	0.07	3216	8.90E-02	1.00E-01
		Emissions, Pounds/Hour								
APU Use - P&W 4062		0.04	0.33	6.72	0.56	0.05	0.04	1373		

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013).

(3) ICAO Engine Exhaust Emissions Data Bank - Subsonic Engines - (ICAO 2013).

Table D3.2-2. HAP Emission Factors - KC-135 and KC-46A Aircraft

Engine Type	Emission Factor (lb/1000 lb fuel) (1)													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
<i>F108-CF-100</i>														
Idle	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.50E-02	0.00E+00	0.00E+00	0.00E+00	3.22E-03	6.23E-03	5.53E-04	1.61E-03	0.00E+00	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	5.58E-03	0.00E+00	0.00E+00	0.00E+00	4.25E-04	1.42E-03	0.00E+00	5.42E-04	0.00E+00	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03
<i>P&amp;W 4062 (3)</i>														
Idle	1.78E+00	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.48E-02	5.13E-03	2.94E-03	6.50E-04	2.02E-03	7.71E-04	2.09E-04	3.39E-04	3.71E-04	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	1.31E-02	4.56E-03	2.61E-03	5.78E-04	1.79E-03	6.85E-04	1.86E-04	3.01E-04	3.30E-04	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013), Table 2-9.

Table D3.2-3. Land and Take-off/Touch and Go Times in Mode and Fuel Usages - KC-135 and KC-46A Aircraft

Aircraft/Mode (Engine Throttle Setting)	LTO		Touch & Go		
	Time in Mode (TIM)		Fuel Usage	TIM	Fuel Usage
	Minutes	Hours	Pounds	Hours	Pounds
<i>KC-135 (2)</i>					
Taxi Out (Idle)	32.8	0.55	2217		
Take-off (Military)	0.7	0.01	364	0.01	364
Climbout (Intermediate)	2.5	0.04	1081	0.04	1081
Approach	5.2	0.09	854	0.09	854
Taxi In (Idle)	14.9	0.25	1007		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5523</b>	<b>0.14</b>	<b>2299</b>
<i>KC-46A (2)</i>					
Taxi Out (Idle)	32.8	0.55	1818		
Take-off (Military)	0.7	0.01	505	0.01	505
Climbout (Intermediate)	2.5	0.04	1406	0.04	1406
Approach	5.2	0.09	988	0.09	988
Taxi In (Idle)	14.9	0.25	826		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5543</b>	<b>0.14</b>	<b>2899</b>
<i>APU Use, KC-46A (3)</i>		<b>Hours</b>			
Pre-Flight - OBIGGS + Electric + Max ECS		1.50			
Pre-Flight - Main Engine Start + Electric		0.03			
Post-Flight - Electric + Min ECS		0.58			
<b>Total Hours per LTO</b>		<b>2.12</b>			

Notes: (1) Fuel usage per aircraft.

(2) TIM Data from Table 2-4, Transport Aircraft (AFCEC 2013).

(3) APU use from FTU/MOB1 Draft EIS.

Table D3.2-4. Land and Take-off/Touch and Go Total Fuel Usages and Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)								
LTOs	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Taxi Out (Idle)	32.8	0.55	2217	4.67	68.05	8.87	2.35	0.13	0.13	7129.08	0.20	0.22
Take-off (Military)	0.7	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.5	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.2	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Taxi In (Idle)	14.9	0.25	1007	2.12	30.91	4.03	1.07	0.06	0.06	3238.52	0.09	0.10
Totals	56.1	0.935	5523	6.94	102.69	43.93	5.85	0.32	0.32	17761.24	0.49	0.55
KC-46A (2)												
Taxi Out (Idle)	32.8	0.55	1818	22.71	77.48	6.87	1.93	0.20	0.18	5848.08	0.16	0.18
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Taxi In (Idle)	14.9	0.25	826	10.32	35.20	3.12	0.88	0.09	0.08	2656.60	0.07	0.08
Totals	56.1	0.935	5543	33.29	115.60	75.88	5.88	0.48	0.42	17826.96	0.49	0.55

Aircraft/Mode	Touch and Go			Emissions (Pounds)								
Touch and Go	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Take-off (Military)	0.70	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.50	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.20	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Totals	8.40	0.14	2299	0.16	3.72	31.03	2.44	0.13	0.13	7393.64	0.20	0.23
KC-46A (2)												
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Totals	8.40	0.14	2899	0.26	2.92	65.89	3.07	0.19	0.16	9322.28	0.26	0.29

Table D3.2-5. Land and Take-off/Touch and Go Total Fuel Usages and HAP Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)													
LTOs	Time in Mode (TIM)		Fuel Usage	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Taxi Out (Idle)	32.8	0.55	2217	0.21	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.01
Take-off (Military)	0.7	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.2	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	1007	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Totals	56.1	0.94	5523	0.33	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.31	0.02
KC-46A (2)																	
Taxi Out (Idle)	32.8	0.55	1818	3.24	1.13	0.65	0.14	0.44	0.17	0.05	0.07	0.08	0.01	0.00	0.00	0.12	0.01
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	826	1.47	0.51	0.29	0.06	0.20	0.08	0.02	0.03	0.04	0.00	0.00	0.00	0.06	0.00
Totals	56.1	0.94	5543	4.75	1.65	0.95	0.21	0.65	0.25	0.07	0.11	0.12	0.01	0.00	0.00	0.29	0.02

Aircraft/Mode	Touch and Go			Emissions (Pounds)													
Touch and Go	Time in Mode (TIM)		Fuel Usage Pounds	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours															
KC-135 (2)																	
Take-off (Military)	0.70	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.50	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.20	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2299	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
KC-46A (2)																	
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2899	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

Table D3.2-6. Annual Air Operations for Aircraft at McGuire - Baseline

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-135	834	3336	8340

Table D3.2-7. KC-135 Aircraft Closed Pattern Operations at McGuire, Baseline

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)									
	Fraction of Ops	Total Ops per Pattern	48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0
CR01 IFR to RWY06 on South Side	0.0530	177	2.1406		8.5008		0.1362	2.0365	1.5710		0.7596	0.4919
CR02 TACAN RWY06 VFR Circle	0.0035	12	0.6319	0.8571	7.1268		0.1362	2.9128	1.5710		0.7596	0.4919
CR03 North Radar Track	0.0141	47	2.1406		5.0742		0.1362	1.6240	1.5710		0.7596	0.4919
CR04 Radar Track on 18C3	0.0059	20	2.1406		8.2663		0.1362	2.1209	1.5710		0.7596	0.4919
CR05 Radar Track on 18C4	0.0059	20	2.1406		6.8000		0.0681	2.1209	1.5710		0.7596	0.5567
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.0919	307	2.1406		7.4803		0.1362	2.1209	1.5712		0.7594	0.4919
CR07 Radar Track 150HDG for Crosswind	0.0141	47	2.1406		7.6444		0.1362	2.1209	1.5710		0.7596	0.4919
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.0071	24	0.6319	1.0058	7.2052	1.6424	0.1362	2.1650	1.5710		0.7596	0.4919
CR09 Radar track to North	0.0283	94	2.1406		6.5939		0.1362	3.9770	1.5710		0.7596	0.4919
CR10 Radar track on 36C3	0.0059	20	2.1406		7.3686		0.1362		3.6919		0.7596	0.4919
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.0059	20	0.6948	0.8238	7.2755	1.9866	0.1362	1.2953	1.5710		0.7596	0.4919
CV01 - North VFR	0.2122	708	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV02 - West VFR on 18C2	0.0353	118	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV03 - North VFR Inside Housing	0.0382	127	0.7645	1.1669	0.7397	0.7516	0.1362		0.7571		0.3668	0.4919
CV04 - North VFR Outside Housing	0.3775	1259	0.7645	1.1669	0.9721	1.5196	0.0681		0.7571		0.3668	0.5567
CV05 - VFR With Breakout	0.0657	219	0.7645	1.1670	0.6680		0.1362	0.6419	0.7571	2.9350	0.3668	0.4919
CV06 - West VFR on 36C2	0.0353	118	0.7645	1.1669	0.7397	0.8613	0.1362		0.7571		0.3668	0.4919
Total Ops		3336										

Table D3.2-8. KC-135 Aircraft Closed Pattern Operations - Fuel Use and Emission Factors, Baseline

Factor	Engine Setting/Time in Mode per Operation (Minutes)											
	48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0		
Fuel Use, lbs/hr	17295.696	18905.04	19910.88	20916.72	21319.056	21922.56	22123.728	22928.4	26274.6	29232.72		
Emission Factors, lbs/1000 lbs fuel												
VOC	0.0760	0.0726	0.0704	0.0683	0.0674	0.0661	0.0657	0.0640	0.0568	0.0503		
CO	2.2991	1.8881	1.6313	1.3744	1.2716	1.1175	1.0661	0.8606	0.0900	0.0900		
NOx	11.8075	12.5875	13.0750	13.5625	13.7575	14.0500	14.1475	14.5375	16.1563	17.5625		
SO2	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600		
PM10	0.0554	0.0544	0.0538	0.0531	0.0529	0.0525	0.0524	0.0519	0.0513	0.0625		
PM2.5	0.0554	0.0544	0.0538	0.0531	0.0529	0.0525	0.0524	0.0519	0.0513	0.0625		
CO2	3216	3216	3216	3216	3216	3216	3216	3216	3216	3216		
CH4	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890		
N2O	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000		

Table D3.2-9. KC-135 Aircraft Closed Pattern Operations - Emissions Per Operation, Baseline

Emissions per operation, lbs	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
CR01 IFR to RWY06 on South Side	0.3671	7.5825	73.0690	5.7050	0.2898	0.2898	17308.8124	0.4790	0.5382
CR02 TACAN RWY06 VFR Circle	0.3427	6.7066	69.8701	5.3864	0.2727	0.2727	16342.0124	0.4523	0.5081
CR03 North Radar Track	0.2770	5.5592	56.0837	4.3399	0.2208	0.2208	13167.1627	0.3644	0.4094
CR04 Radar Track on 18C3	0.3636	7.4901	72.4847	5.6552	0.2872	0.2872	17157.7017	0.4748	0.5335
CR05 Radar Track on 18C4	0.3293	6.6684	66.3436	5.1472	0.2618	0.2618	15616.4405	0.4322	0.4856
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.3453	7.0646	69.0735	5.3787	0.2732	0.2732	16318.7065	0.4516	0.5074
CR07 Radar Track 150HDG for Crosswind	0.3491	7.1534	69.7860	5.4364	0.2761	0.2761	16493.9067	0.4565	0.5129
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.3689	7.3190	74.7264	5.7809	0.2927	0.2927	17538.9678	0.4854	0.5454
CR09 Radar track to North	0.3694	7.3426	74.7566	5.7858	0.2930	0.2930	17553.8740	0.4858	0.5458
CR10 Radar track on 36C3	0.3428	6.9719	68.7658	5.3470	0.2715	0.2715	16222.5155	0.4489	0.5044
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.3550	7.1003	71.6865	5.5544	0.2815	0.2815	16851.8535	0.4664	0.5240
CV01 - North VFR	0.1240	2.4040	25.9387	1.9732	0.1017	0.1017	5986.4890	0.1657	0.1861
CV02 - West VFR on 18C2	0.1240	2.4040	25.9387	1.9732	0.1017	0.1017	5986.4890	0.1657	0.1861
CV03 - North VFR Inside Housing	0.1214	2.3566	25.4126	1.9328	0.0997	0.0997	5863.9644	0.1623	0.1823
CV04 - North VFR Outside Housing	0.1451	2.8224	30.2732	2.3061	0.1188	0.1188	6996.6470	0.1936	0.2176
CV05 - VFR With Breakout	0.1891	3.1850	41.1481	3.0673	0.1550	0.1550	9306.0728	0.2575	0.2894
CV06 - West VFR on 36C2	0.1240	2.4092	25.9314	1.9733	0.1017	0.1017	5986.9753	0.1657	0.1862

Emissions, closed pattern ops, tons/year

0.3160 6.2145 65.0183 4.9886 0.2551 0.2551 15135.2626 0.4189 0.4706



Table D3.2-10. Annual Air Emissions for KC-135 Aircraft Operations at McGuire - Baseline

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 LTOs	2.89	42.82	18.32	2.44	0.14	0.14	7406.44	0.20	0.23
KC-135 T&G	0.32	6.21	65.02	4.99	0.26	0.26	15135.26	0.42	0.47
Total Existing	3.21	49.03	83.34	7.43	0.39	0.39	22541.70	0.62	0.70

Table D3.2-11. Annual HAP Emissions for KC-135 Aircraft Operations at McGuire - Baseline

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-135 LTOs	0.14	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
KC-135 Closed Pattern Ops	0.04	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.01
Total Existing	0.17	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.29	0.02

Table D3.2-12. JP-8 AGE Equipment Emissions, McGuire, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-135 AGE																	
Sorties:	834																
	Hours/Sortie																
Generator AIM32A-86	10	8340.00	6.47	69679.35	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.12E+02	8.40E+00	5.41E+00	1.67E+00	1.64E+00	8.46E-01
Start Cart AIM32A-60A	1	834.00	10.16	8474.52	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	3.35E+00	1.01E+01	4.96E-01	3.88E-01	3.77E-01	1.32E-01
Start Cart AIM32A-95	0.1	83.40	8.75	729.75	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	2.70E-01	1.08E+00	1.29E-01	2.02E-02	1.97E-02	1.14E-02
Heater/AC Ace 802-993 AC	10	8340.00	6.80	128059.35	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	5.40E+01	2.76E+00	3.75E+00	3.64E+00	3.53E+00	8.83E-01
MA-3C Air Conditioner	2	1668.00	7.12	11299.35	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	1.53E+01	1.17E+00	1.95E-01	4.01E-01	3.86E-01	1.84E-01
H1	5	4170.00	0.39	1530.12	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.45E+00	1.66E+00	9.19E-01	1.00E+00	1.00E+00	2.76E-02
1H1	4	3336.00	0.39	1224.10	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.16E+00	1.33E+00	7.35E-01	8.02E-01	8.02E-01	2.21E-02
Light Cart NF-2	2	1668.00	1.02	1694.90	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	4.05E-01	2.94E-01	3.68E-02	3.68E-02	3.68E-02	2.64E-02
Air Compressor MC-1A	0.33	275.22	1.09	285.87	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	2.54E-01	1.62E-01	1.62E-01	4.31E-02	4.13E-02	4.85E-03
Total JP-8 AGE, Tons/year				hp-hrs	3949884.048							9.42E-02	1.35E-02	5.92E-03	4.00E-03	3.92E-03	1.07E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.2-13. AGE HAP Emissions, McGuire, Baseline

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	2.13E+01	7.00E-02	
Acrolein		6.48E-04	2.56E+00		
Benzene	7.65E-03	6.50E-03	2.57E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.08E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	3.28E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	2.35E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	4.74E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.15E+01		
Xylenes		2.00E-03	7.90E+00		
Total			9.68E-03		

Table D3.2-14. JP-8 AGE Equipment GHG Emissions, McGuire, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-135 AGE											
Sorties:	834										
	Hours/Sortie										
Generator AIM32A-86	10	8340.00	6.47	69679.35	148	2.11E+01	5.91E-04	6.80E-04	1.47E+06	4.12E+01	4.74E+01
Start Cart AIM32A-60A	1	834.00	10.16	8474.52	180	2.11E+01	5.91E-04	6.80E-04	1.79E+05	5.01E+00	5.76E+00
Start Cart AIM32A-95	0.1	83.40	8.75	729.75	155	2.11E+01	5.91E-04	6.80E-04	1.54E+04	4.31E-01	4.96E-01
Heater/AC Ace 802-993 AC	10	8340.00	6.80	128059.35	272	2.11E+01	5.91E-04	6.80E-04	2.70E+06	7.57E+01	8.71E+01
MA-3C Air Conditioner	2	1668.00	7.12	11299.35	120	2.11E+01	5.91E-04	6.80E-04	2.38E+05	6.68E+00	7.68E+00
H1	5	4170.00	0.39	1530.12	6.5	2.11E+01	5.91E-04	6.80E-04	3.23E+04	9.04E-01	1.04E+00
1H1	4	3336.00	0.39	1224.10	6.5	2.11E+01	5.91E-04	6.80E-04	2.58E+04	7.23E-01	8.32E-01
Light Cart NF-2	2	1668.00	1.02	1694.90	18	2.11E+01	5.91E-04	6.80E-04	3.58E+04	1.00E+00	1.15E+00
Air Compressor MC-1A	0.33	275.22	1.09	285.87	18.4	2.11E+01	5.91E-04	6.80E-04	6.03E+03	1.69E-01	1.94E-01
Total JP-8 AGE, Metric Tons/year									2.13E+03	5.98E-02	6.88E-02

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.2-15. Aircraft Engine Emissions - Engine Tests, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-135																	
Defueling	21	Idle	0.50	1	1,014	2.1	30.7	4.0	1.1	0.1	0.1	22.40	326.79	42.58	11.28	1.30	1.30
Maintenance Run	83	Idle	0.33	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	236.10	3,444.22	448.76	118.92	13.67	13.67
TRT Run 2 Engine	10	Idle	0.17	2	1,014	2.1	30.7	4.0	1.1	0.1	0.1	7.11	103.74	13.52	3.58	0.41	0.41
	10	80% RPM	0.08	2	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.60	1.17	240.54	13.78	1.43	1.43
TRT Run 4 Engine	7	Idle	0.17	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	9.96	145.24	18.92	5.01	0.58	0.58
	7	80% RPM	0.08	4	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.84	1.64	336.75	19.29	2.00	2.00
												0.14	2.01	0.55	0.09	0.01	0.01

Table D3.2-16. HAP Emissions, Engine Tests, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-135																				
Defueling	21	Idle	0.50	1	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
Maintenance Run	83	Idle	0.33	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
TRT Run 2 Engine	10	Idle	0.17	2	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	10	80% RPM	0.08	2	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
TRT Run 4 Engine	7	Idle	0.17	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	7	80% RPM	0.08	4	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
						Emissions, lbs/yr														Total HAPs, TPY
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
						1.01	0.00	0.00	0.03	0.02	0.10	0.01	0.02	0.02	0.02	0.01	0.01	0.72	0.05	
						10.67	0.00	0.00	0.33	0.21	1.01	0.08	0.19	0.17	0.26	0.10	0.11	7.57	0.54	
						0.32	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.23	0.02	
						0.09	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.03	0.03	
						0.45	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.01	0.01	0.00	0.00	0.32	0.02	
						0.13	0.00	0.00	0.00	0.02	0.02	0.00	0.01	0.00	0.02	0.01	0.01	0.04	0.04	
						0.00633576	0	0	0.000189869	0.00014172	0.0006046	4.4783E-05	0.00011327	9.6899E-05	0.000169651	6.50339E-05	7.09285E-05	0.00444994	0.0003553	

Table D3.2-17. GHG Emissions, Engine Tests, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)			
KC-135											
Defueling	21	Idle	0.50	1	1,014	3,216.0	0.1	0.1	34,232.65	0.95	1.06
Maintenance Run	83	Idle	0.33	4	1,014	3,216.0	0.1	0.1	360,801.24	9.98	11.22
TRT Run 2 Engine	10	Idle	0.17	2	1,014	3,216.0	0.1	0.1	10,867.51	0.30	0.34
	10	80% RPM	0.08	2	7801.2	3,216.0	0.1	0.1	41,814.43	1.16	1.30
TRT Run 4 Engine	7	Idle	0.17	4	1,014	3,216.0	0.1	0.1	15,214.51	0.42	0.47
	7	80% RPM	0.08	4	7801.2	3,216.0	0.1	0.1	58,540.20	1.62	1.82
<b>Total, tpy</b>									<b>237</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.2-18. Annual Worker Population and VMT at McGuire - KC-46A Project Scenarios

Scenario	Total # of Workers	Annual On-Base VMT	Annual Off-Base VMT
Existing	1051	273260	4560709.4
Proposed Action	1306	339560	5667256.4

<sup>1</sup> On-Base mileage based on 1.00 miles from 2009 AEI; assume 260 days/year<sup>2</sup> Off-Base mileage based on distance to downtown Burlington, 16.69 miles; assume 260 days/year

Table D3.2-19. Annual Average On-Road Vehicle Emission Factors - McGuire

Scenario/Vehicle Class	POV Mix (%)	Emission Factors (Grams/Mile)						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	0.587	9.65	0.442	0.007	0.025	0.011	368.1
LDDT	0.03	0.132	0.808	0.2	0.003	0.053	0.037	314
LDGT	60.32	0.826	11.45	0.694	0.01	0.025	0.011	516.1
LDDT	0.2	0.393	0.708	0.46	0.006	0.06	0.044	599.2
HDGV	0	1.081	28	1.201	0.017	0.049	0.032	905.3
HDDV	0	0.684	2.315	3.359	0.012	0.129	0.1	1245.6
MC	1.9	2.9	27.28	0.85	0.003	0.037	0.021	177.4
Proposed Action (Year 2018) (1)								
LDGV	37.55	0.446	8.78	0.316	0.007	0.025	0.011	368
LDDT	0.03	0.087	0.692	0.088	0.003	0.038	0.023	314.1
LDGT	60.32	0.664	10	0.521	0.01	0.025	0.011	516.6
LDDT	0.2	0.305	0.6	0.317	0.006	0.047	0.032	598.6
HDGV	0	0.784	26.32	0.677	0.017	0.04	0.025	904
HDDV	0	0.583	1.428	1.919	0.012	0.078	0.053	1245.9
MC	1.9	2.9	27.28	0.85	0.003	0.037	0.021	177.4

Notes: (1) Emission factors from AFCEC 2013, Table 5-13, for 2017 used to provide a conservative estimate of emissions for 2018

Table D3.2-20. Annual Average On-Base Vehicle Emissions

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	132.79	2182.98	99.99	1.58	5.66	2.49	83269.96
LDDT	0.03	0.02	0.15	0.04	0.00	0.01	0.01	56.75
LDGT	60.32	300.16	4160.82	252.19	3.63	9.08	4.00	187545.99
LDDT	0.2	0.47	0.85	0.55	0.01	0.07	0.05	721.96
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	33.19	312.26	9.73	0.03	0.42	0.24	2030.58
Total Existing, tons/year		0.23	3.33	0.18	0.00	0.01	0.00	136.81
Proposed Action (Year 2018) (1)								
LDGV	37.55	125.37	2468.07	88.83	1.97	7.03	3.09	103445.31
LDDT	0.03	0.02	0.16	0.02	0.00	0.01	0.01	70.54
LDGT	60.32	299.84	4515.59	235.26	4.52	11.29	4.97	233275.32
LDDT	0.2	0.46	0.90	0.47	0.01	0.07	0.05	896.23
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	41.25	388.02	12.09	0.04	0.53	0.30	2523.25
Total Proposed Action, tons/year		0.23	3.69	0.17	0.00	0.01	0.00	170.11

Table D3.2-21. Annual Average Off-Base Vehicle Emissions

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	3118.59	43229.91	2620.22	37.76	94.39	41.53	1948555.27
LDDT	0.03	1.19	2.14	1.39	0.02	0.18	0.13	1807.43
LDGT	60.32	6556.26	169819.79	7284.06	103.10	297.18	194.08	5490637.63
LDDT	0.2	13.75	46.55	67.55	0.24	2.59	2.01	25048.26
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	85.20	1677.32	60.37	1.34	4.78	2.10	70302.43
Total Existing, tons/year		4.89	107.39	5.02	0.07	0.20	0.12	3768.18
Proposed Action (Year 2018) (1)								
LDGV	37.55	3115.21	46915.82	2444.31	46.92	117.29	51.61	2423671.37
LDDT	0.03	1.14	2.25	1.19	0.02	0.18	0.12	2243.71
LDGT	60.32	5908.63	198361.15	5102.22	128.12	301.46	188.41	6813011.99
LDDT	0.2	14.57	35.68	47.95	0.30	1.95	1.32	31133.11
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Proposed Action, tons/year		4.52	122.66	3.80	0.09	0.21	0.12	4635.03

Table D3.2-22. Annual Air Operations for Aircraft at McGuire - Proposed Action

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-46A	1508	7296	17608

Table D3.2-23. KC-46A Aircraft Closed Pattern Operations at McGuire - KC-46A Proposed Scenarios

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)									
	Fraction of Ops	Total Ops per Pattern	48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0
CR01 IFR to RWY06 on South Side	0.0559	408	2.1406		8.5008		0.1362	2.0365	1.5710		0.7596	0.4919
CR02 TACAN RWY06 VFR Circle	0.0037	27	0.6319	0.8571	7.1268		0.1362	2.9128	1.5710		0.7596	0.4919
CR03 North Radar Track	0.0150	110	2.1406		5.0742		0.1362	1.6240	1.5710		0.7596	0.4919
CR04 Radar Track on 18C3	0.0063	46	2.1406		8.2663		0.1362	2.1209	1.5710		0.7596	0.4919
CR05 Radar Track on 18C4	0.0063	46	2.1406		6.8000		0.0681	2.1209	1.5710		0.7596	0.5567
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.0792	578	2.1406		7.4803		0.1362	2.1209	1.5712		0.7594	0.4919
CR07 Radar Track 150HDG for Crosswind	0.0150	110	2.1406		7.6444		0.1362	2.1209	1.5710		0.7596	0.4919
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.0075	55	0.6319	1.0058	7.2052	1.6424	0.1362	2.1650	1.5710		0.7596	0.4919
CR09 Radar track to North	0.0300	219	2.1406		6.5939		0.1362	3.9770	1.5710		0.7596	0.4919
CR10 Radar track on 36C3	0.0063	46	2.1406		7.3686		0.1362		3.6919		0.7596	0.4919
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.0063	46	0.6948	0.8238	7.2755	1.9866	0.1362	1.2953	1.5710		0.7596	0.4919
CV01 - North VFR	0.2135	1557	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV02 - West VFR on 18C2	0.0425	310	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV03 - North VFR Inside Housing	0.0502	366	0.7645	1.1669	0.7397	0.7516	0.1362		0.7571		0.3668	0.4919
CV04 - North VFR Outside Housing	0.3860	2816	0.7645	1.1669	0.9721	1.5196	0.0681		0.7571		0.3668	0.5567
CV05 - VFR With Breakout	0.0090	66	0.7645	1.1670	0.6680		0.1362	0.6419	0.7571	2.9350	0.3668	0.4919
CV06 - West VFR on 36C2	0.0675	493	0.7645	1.1669	0.7397	0.8613	0.1362		0.7571		0.3668	0.4919
Total Ops		7296										

Table D3.2-24. KC-46A Aircraft Closed Pattern Operations - Fuel Use and Emission Factors

Factor	Engine Setting/Time in Mode per Operation (Minutes)											
	48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0		
Fuel Use, lbs/hr	19668.32	21455.2	22572	23688.8	24135.52	24805.6	24894.944	25922.4	29496.16	31506.4		
Emission Factors, lbs/1000 lbs fuel												
VOC	0.0950	0.0932	0.0920	0.0909	0.0904	0.0897	0.0896	0.0886	0.0849	0.0828		
CO	1.4009	1.2865	1.2150	1.1435	1.1149	1.0720	1.0663	1.0005	0.7717	0.6430		
NOx	17.2797	18.3845	19.0750	19.7655	20.0417	20.4560	20.5112	21.1465	23.3561	24.5990		
SO2	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600		
PM10	0.0574	0.0590	0.0600	0.0610	0.0614	0.0620	0.0621	0.0630	0.0662	0.0680		
PM2.5	0.0474	0.0490	0.0500	0.0510	0.0514	0.0520	0.0521	0.0530	0.0562	0.0580		
CO2	3216	3216	3216	3216	3216	3216	3216	3216	3216	3216		
CH4	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890		
N2O	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000		

Table D3.2-25. KC-46A Aircraft Closed Pattern Operations - Emissions Per Operation

Emissions per operation, lbs	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
CR01 IFR to RWY06 on South Side	0.5528	6.9815	119.8938	6.4448	0.3705	0.3097	19553.2901	0.5411	0.6080
CR02 TACAN RWY06 VFR Circle	0.5193	6.4433	114.5336	6.0816	0.3516	0.2942	18451.2142	0.5106	0.5737
CR03 North Radar Track	0.4189	5.2325	91.8159	4.8976	0.2826	0.2364	14859.1404	0.4112	0.4620
CR04 Radar Track on 18C3	0.5478	6.9117	118.9246	6.3883	0.3673	0.3071	19381.7711	0.5364	0.6027
CR05 Radar Track on 18C4	0.4974	6.2328	108.6896	5.8105	0.3349	0.2801	17628.9690	0.4879	0.5482
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.5206	6.5524	113.2829	6.0748	0.3496	0.2923	18430.6441	0.5101	0.5731
CR07 Radar Track 150HDG for Crosswind	0.5263	6.6274	114.4612	6.1402	0.3533	0.2954	18629.2587	0.5155	0.5793
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.5582	6.9576	122.5660	6.5288	0.3769	0.3153	19808.1470	0.5482	0.6159
CR09 Radar track to North	0.5588	6.9699	122.6205	6.5348	0.3772	0.3155	19826.2219	0.5487	0.6165
CR10 Radar track on 36C3	0.5170	6.4998	112.5958	6.0336	0.3473	0.2904	18305.8273	0.5066	0.5692
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.5366	6.7049	117.5614	6.2726	0.3618	0.3027	19030.9306	0.5267	0.5918
CV01 - North VFR	0.1889	2.3143	42.1492	2.2192	0.1288	0.1079	6732.8662	0.1863	0.2094
CV02 - West VFR on 18C2	0.1889	2.3143	42.1492	2.2192	0.1288	0.1079	6732.8662	0.1863	0.2094
CV03 - North VFR Inside Housing	0.1850	2.2666	41.2817	2.1735	0.1262	0.1057	6594.1730	0.1825	0.2050
CV04 - North VFR Outside Housing	0.2210	2.7109	49.2300	2.5945	0.1505	0.1261	7871.7252	0.2178	0.2448
CV05 - VFR With Breakout	0.2917	3.4477	67.1451	3.4557	0.2028	0.1702	10484.5776	0.2902	0.3260
CV06 - West VFR on 36C2	0.1890	2.3161	42.1379	2.2194	0.1288	0.1079	6733.4865	0.1863	0.2094
Emissions, closed pattern ops, tons/year	1.0238	12.6852	226.0694	11.9930	0.6937	0.5806	36386.3482	1.0070	1.1314

Table D3.2-26. Annual Air Emissions for KC-46A Aircraft Operations at McGuire - Proposed Action

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A LTOs	25.10	87.16	57.22	4.43	0.36	0.32	13441.53	0.37	0.42
KC-46A T&G	1.02	12.69	226.07	11.99	0.69	0.58	36386.35	1.01	1.13
APU	0.06	0.53	10.74	0.90	0.08	0.06	2194.71	0.00	0.00
Total Proposed Action	26.19	100.37	294.03	17.32	1.13	0.96	52022.59	1.38	1.55

Table D3.2-27. Annual HAP Emissions for KC-46A Aircraft Operations at McGuire - Proposed Action

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-46A LTOs	3.58	1.24	0.71	0.16	0.49	0.19	0.05	0.08	0.09	0.01	0.00	0.00	0.22	0.02
KC-46A Closed Pattern Ops	0.14	0.05	0.03	0.01	0.02	0.01	0.00	0.00	0.00	0.02	0.01	0.01	0.42	0.03
Total Proposed Action	3.72	1.29	0.74	0.16	0.51	0.19	0.05	0.09	0.09	0.03	0.01	0.01	0.65	0.05

Table D3.2-28. JP-8 AGE Equipment Emissions, Proposed Action, McGuire

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-46A AGE																	
Sorties:	1508																
	Hours/Sortie																
Generator AM32A-86	10	15080.00	6.47	125990.97	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	2.03E+02	1.52E+01	9.77E+00	3.03E+00	2.96E+00	1.53E+00
Start Cart AM32A-60A	1	1508.00	10.16	15323.23	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	6.05E+00	1.82E+01	8.98E-01	7.01E-01	6.82E-01	2.39E-01
Start Cart AM32A-95	0.1	150.80	8.75	1319.50	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	4.89E-01	1.95E+00	2.33E-01	3.66E-02	3.56E-02	2.06E-02
Heater/AC Ace 802-993 AC	10	15080.00	6.80	231550.97	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	9.77E+01	4.99E+00	6.78E+00	6.58E+00	6.38E+00	1.60E+00
MA-3C Air Conditioner	2	3016.00	7.12	20430.97	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	2.77E+01	2.11E+00	3.52E-01	7.25E-01	6.98E-01	3.32E-01
H1	5	7540.00	0.39	2766.69	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.63E+00	3.01E+00	1.66E+00	1.81E+00	1.81E+00	4.99E-02
1H1	4	6032.00	0.39	2213.35	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.10E+00	2.41E+00	1.33E+00	1.45E+00	1.45E+00	3.99E-02
Light Cart NF-2	2	3016.00	1.02	3064.65	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	7.31E-01	5.32E-01	6.65E-02	6.65E-02	6.65E-02	4.78E-02
Air Compressor MC-1A	0.33	497.64	1.09	516.90	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	4.60E-01	2.93E-01	2.93E-01	7.79E-02	7.46E-02	8.78E-03
Total JP-8 AGE, Tons/year				hp-hrs	7141996.576							1.70E-01	2.43E-02	1.07E-02	7.24E-03	7.08E-03	1.93E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.2-29. AGE HAP Emissions, Proposed Action, McGuire

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	3.86E+01	7.00E-02	
Acrolein		6.48E-04	4.63E+00		
Benzene	7.65E-03	6.50E-03	4.64E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.96E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	5.93E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	4.24E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	8.57E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	2.07E+01		
Xylenes		2.00E-03	1.43E+01		
Total			1.75E-02		

Table D3.2-30. JP-8 AGE Equipment GHG Emissions, Proposed Action, McGuire

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-46A AGE											
Sorties:	1508										
	Hours/Sortie										
Generator AM32A-86	10	15080.00	6.47	125990.97	148	2.11E+01	5.91E-04	6.80E-04	2.66E+06	7.45E+01	8.57E+01
Start Cart AM32A-60A	1	1508.00	10.16	15323.23	180	2.11E+01	5.91E-04	6.80E-04	3.23E+05	9.06E+00	1.04E+01
Start Cart AM32A-95	0.1	150.80	8.75	1319.50	155	2.11E+01	5.91E-04	6.80E-04	2.78E+04	7.80E-01	8.97E-01
Heater/AC Ace 802-993 AC	10	15080.00	6.80	231550.97	272	2.11E+01	5.91E-04	6.80E-04	4.89E+06	1.37E+02	1.57E+02
MA-3C Air Conditioner	2	3016.00	7.12	20430.97	120	2.11E+01	5.91E-04	6.80E-04	4.31E+05	1.21E+01	1.39E+01
H1	5	7540.00	0.39	2766.69	6.5	2.11E+01	5.91E-04	6.80E-04	5.84E+04	1.64E+00	1.88E+00
1H1	4	6032.00	0.39	2213.35	6.5	2.11E+01	5.91E-04	6.80E-04	4.67E+04	1.31E+00	1.51E+00
Light Cart NF-2	2	3016.00	1.02	3064.65	18	2.11E+01	5.91E-04	6.80E-04	6.47E+04	1.81E+00	2.08E+00
Air Compressor MC-1A	0.33	497.64	1.09	516.90	18.4	2.11E+01	5.91E-04	6.80E-04	1.09E+04	3.05E-01	3.51E-01
Total JP-8 AGE, Metric Tons/year									3.86E+03	1.08E-01	1.24E-01

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.



Table D3.2-31. Aircraft Engine Emissions - Engine Tests, Proposed Action, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-46A																	
Defueling	44	Idle	0.50	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	456.98	1,559.12	138.31	38.79	4.02	3.66
Maintenance Run	175	Idle	0.33	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	2,423.37	8,268.04	733.47	205.68	21.34	19.40
TRT Run 1 Engine	20	Idle	0.17	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	69.24	236.23	20.96	5.88	0.61	0.55
	20	80% RPM	0.08	1	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	2.26	14.06	730.45	29.80	1.97	1.69
TRT Run 2 Engine	15	Idle	0.17	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	103.86	354.34	31.43	8.81	0.91	0.83
	15	80% RPM	0.08	2	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	3.40	21.09	1,095.68	44.70	2.95	2.53
												1.53	5.23	1.38	0.17	0.02	0.01

Table D3.2-32. HAP Emissions, Engine Tests, Proposed Action, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)															
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate		
KC-46A																					
Defueling	44	Idle	0.50	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
Maintenance Run	175	Idle	0.33	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
TRT Run 2 Engine	20	Idle	0.17	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
	20	80% RPM	0.08	1	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03		
TRT Run 4 Engine	15	Idle	0.17	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
	15	80% RPM	0.08	2	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03		
						Emissions, lbs/yr														Total HAPs, TPY	
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate		
						22.64	12.98	2.87	8.91	3.40	0.92	1.50	1.64	0.12	0.03	0.04	2.47	0.18	0.18		
						120.09	68.85	15.21	47.27	18.05	4.90	7.93	8.70	0.64	0.18	0.19	13.10	0.94	0.94		
						3.43	1.97	0.43	1.35	0.52	0.14	0.23	0.25	0.02	0.01	0.01	0.37	0.03	0.03		
						0.32	0.11	0.06	0.01	0.04	0.02	0.00	0.01	0.01	0.05	0.02	0.01	1.42	0.07		
						5.15	2.95	0.65	2.03	0.77	0.21	0.34	0.37	0.03	0.01	0.01	0.56	0.04	0.04		
						0.48	0.17	0.10	0.02	0.07	0.03	0.01	0.01	0.01	0.07	0.03	0.02	2.13	0.11		
						0.07605772	0.04351743	0.00966467	0.029796732	0.01142702	0.00310768	0.00500308	0.00548917	0.00041479	0.000173465	0.000146238	0.00826944	0.00237123	0.00068216		0.19612083

Table D3.2-33. GHG Emissions, Engine Tests, Proposed Action, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-46A											
Defueling	44	Idle	0.50	1	1,663	3,216.0	0.1	0.1	117,674.73	3.26	3.66
Maintenance Run	175	Idle	0.33	2	1,663	3,216.0	0.1	0.1	624,032.64	17.27	19.40
TRT Run 2 Engine	20	Idle	0.17	1	1,663	3,216.0	0.1	0.1	17,829.50	0.49	0.55
	20	80% RPM	0.08	1	16869.6	3,216.0	0.1	0.1	90,421.06	2.50	2.81
TRT Run 4 Engine	15	Idle	0.17	2	1,663	3,216.0	0.1	0.1	26,744.26	0.74	0.83
	15	80% RPM	0.08	2	16869.6	3,216.0	0.1	0.1	135,631.58	3.75	4.22
<b>Total, tpy</b>									<b>459</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.2-34. McGuire Comparison of Emissions

Annual Emissions, Tons/year						
Baseline	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	3.21	49.03	83.34	7.43	0.39	0.39
AGE	0.01	0.01	0.09	0.00	0.00	0.00
Engine Tests	0.14	2.01	0.55	0.09	0.01	0.01
POVs	5.12	110.72	5.20	0.07	0.21	0.12
<b>Total</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>7.59</b>	<b>0.61</b>	<b>0.53</b>
Proposed Action	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	26.19	100.37	294.03	17.32	1.13	0.96
AGE	0.01	0.02	0.17	0.00	0.01	0.01
Engine Tests	1.53	5.23	1.38	0.17	0.02	0.01
POVs	4.75	126.34	3.97	0.09	0.22	0.12
<b>Total</b>	<b>32.48</b>	<b>231.97</b>	<b>299.54</b>	<b>17.58</b>	<b>1.38</b>	<b>1.11</b>
<b>Net Increase</b>	<b>24.01</b>	<b>70.19</b>	<b>210.36</b>	<b>9.99</b>	<b>0.77</b>	<b>0.58</b>

Table D3.2-35. McGuire Comparison of HAP Emissions

Annual HAP Emissions, tons/year														
Baseline	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	0.17	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.29	0.02
AGE	0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.20</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.29</b>	<b>0.02</b>
Proposed Action	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	3.72	1.29	0.74	0.16	0.51	0.19	0.05	0.09	0.09	0.03	0.01	0.01	0.65	0.05
AGE	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.08	0.04	0.01	0.03	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00
<b>Total</b>	<b>3.83</b>	<b>1.35</b>	<b>0.75</b>	<b>0.20</b>	<b>0.54</b>	<b>0.20</b>	<b>0.06</b>	<b>0.09</b>	<b>0.09</b>	<b>0.03</b>	<b>0.01</b>	<b>0.02</b>	<b>0.65</b>	<b>0.05</b>
<b>Net Increase</b>	<b>3.63</b>	<b>1.34</b>	<b>0.75</b>	<b>0.19</b>	<b>0.52</b>	<b>0.17</b>	<b>0.06</b>	<b>0.08</b>	<b>0.09</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.36</b>	<b>0.03</b>

Table D3.2-36. McGuire Comparison of GHG Emissions

Annual GHG Emissions, metric tons/year				
Baseline	CO2	CH4	N2O	CO2e
Aircraft Ops	20450	0.57	0.64	20659
AGE	2134	0.06	0.07	2157
Engine Tests	237	0.01	0.01	239
POVs	3543	0.00	0.00	3543
<b>Total</b>	<b>26363</b>	<b>0.63</b>	<b>0.71</b>	<b>26597</b>
Proposed Action	CO2	CH4	N2O	
Aircraft Ops	47195	1.25	1.41	47657
AGE	3859	0.11	0.12	3900
Engine Tests	459	0.01	0.01	464
POVs	4359	0.00	0.00	4359
<b>Total</b>	<b>55872</b>	<b>1.37</b>	<b>1.54</b>	<b>56379</b>
<b>Net Increase</b>	<b>29509</b>	<b>0.74</b>	<b>0.83</b>	<b>29782</b>



**Pease ANG**



Table D3.3-1 Engine Emission Factors by Throttle Setting - KC-135 and KC-46A Aircraft

Engine Type/Throttle Setting	Fuel Flow (Pounds/Hour)	Emission Factors, lbs/1000 lbs fuel								
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
F-108-CF-100 (2)										
Idle	1013.76	2.1045	30.7	4	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Approach	2463.12	0.092	4.2	8.2	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Intermediate	6486.48	0.0575	0.09	16	1.06	0.05	0.05	3216	8.90E-02	1.00E-01
Military	7801.2	0.046	0.09	18.5	1.06	0.07	0.07	3216	8.90E-02	1.00E-01
P&W 4062 (3)										
Idle	1663.2	12.489	42.61	3.78	1.06	0.11	0.1	3216	8.90E-02	1.00E-01
Approach	5702.4	0.1035	1.93	12.17	1.06	0.05	0.04	3216	8.90E-02	1.00E-01
Climbout	16869.6	0.0805	0.5	25.98	1.06	0.07	0.06	3216	8.90E-02	1.00E-01
Take-Off	21621.6	0.092	0.61	34.36	1.06	0.08	0.07	3216	8.90E-02	1.00E-01
		Emissions, Pounds/Hour								
APU Use - P&W 4062		0.04	0.33	6.72	0.56	0.05	0.04	1373		

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013).

(3) ICAO Engine Exhaust Emissions Data Bank - Subsonic Engines - (ICAO 2013).

Table D3.3-2. HAP Emission Factors - KC-135 and KC-46A Aircraft

Engine Type	Emission Factor (lb/1000 lb fuel) (1)													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
<i>F108-CF-100</i>														
Idle	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.50E-02	0.00E+00	0.00E+00	0.00E+00	3.22E-03	6.23E-03	5.53E-04	1.61E-03	0.00E+00	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	5.58E-03	0.00E+00	0.00E+00	0.00E+00	4.25E-04	1.42E-03	0.00E+00	5.42E-04	0.00E+00	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03
<i>P&amp;W 4062 (3)</i>														
Idle	1.78E+00	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.48E-02	5.13E-03	2.94E-03	6.50E-04	2.02E-03	7.71E-04	2.09E-04	3.39E-04	3.71E-04	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	1.31E-02	4.56E-03	2.61E-03	5.78E-04	1.79E-03	6.85E-04	1.86E-04	3.01E-04	3.30E-04	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013), Table 2-9.

Table D3.3-3. Land and Take-off/Touch and Go Times in Mode and Fuel Usages - KC-135 and KC-46A Aircraft

Aircraft/Mode (Engine Throttle Setting)	LTO		Touch & Go	
	Time in Mode (TIM)		TIM	Fuel Usage
	Minutes	Hours	Hours	Pounds
<i>KC-135 (2)</i>				
Taxi Out (Idle)	32.8	0.55		2217
Take-off (Military)	0.7	0.01	0.01	364
Climbout (Intermediate)	2.5	0.04	0.04	1081
Approach	5.2	0.09	0.09	854
Taxi In (Idle)	14.9	0.25		1007
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>0.14</b>	<b>2299</b>
<i>KC-46A (2)</i>				
Taxi Out (Idle)	32.8	0.55		1818
Take-off (Military)	0.7	0.01	0.01	505
Climbout (Intermediate)	2.5	0.04	0.04	1406
Approach	5.2	0.09	0.09	988
Taxi In (Idle)	14.9	0.25		826
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>0.14</b>	<b>2899</b>
<i>APU Use, KC-46A (3)</i>		<b>Hours</b>		
Pre-Flight - OBIGGS + Electric + Max ECS		1.50		
Pre-Flight - Main Engine Start + Electric		0.03		
Post-Flight - Electric + Min ECS		0.58		
<b>Total Hours per LTO</b>		<b>2.12</b>		

Notes: (1) Fuel usage per aircraft.

(2) TIM Data from Table 2-4, Transport Aircraft (AFCEC 2013).

(3) APU use from FTU/MOB1 Draft EIS.

Table D3.3-4. Land and Take-off/Touch and Go Total Fuel Usages and Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)								
LTOs	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Taxi Out (Idle)	32.8	0.55	2217	4.67	68.05	8.87	2.35	0.13	0.13	7129.08	0.20	0.22
Take-off (Military)	0.7	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.5	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.2	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Taxi In (Idle)	14.9	0.25	1007	2.12	30.91	4.03	1.07	0.06	0.06	3238.52	0.09	0.10
Totals	56.1	0.935	5523	6.94	102.69	43.93	5.85	0.32	0.32	17761.24	0.49	0.55
KC-46A (2)												
Taxi Out (Idle)	32.8	0.55	1818	22.71	77.48	6.87	1.93	0.20	0.18	5848.08	0.16	0.18
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Taxi In (Idle)	14.9	0.25	826	10.32	35.20	3.12	0.88	0.09	0.08	2656.60	0.07	0.08
Totals	56.1	0.935	5543	33.29	115.60	75.88	5.88	0.48	0.42	17826.96	0.49	0.55

Aircraft/Mode	Touch and Go			Emissions (Pounds)								
Touch and Go	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Take-off (Military)	0.70	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.50	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.20	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Totals	8.40	0.14	2299	0.16	3.72	31.03	2.44	0.13	0.13	7393.64	0.20	0.23
KC-46A (2)												
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Totals	8.40	0.14	2899	0.26	2.92	65.89	3.07	0.19	0.16	9322.28	0.26	0.29

Table D3.3-5. Land and Take-off/Touch and Go Total Fuel Usages and HAP Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)													
LTOs	Time in Mode (TIM)		Fuel Usage	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Taxi Out (Idle)	32.8	0.55	2217	0.21	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.01
Take-off (Military)	0.7	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.2	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	1007	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Totals	56.1	0.94	5523	0.33	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.31	0.02
KC-46A (2)																	
Taxi Out (Idle)	32.8	0.55	1818	3.24	1.13	0.65	0.14	0.44	0.17	0.05	0.07	0.08	0.01	0.00	0.00	0.12	0.01
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	826	1.47	0.51	0.29	0.06	0.20	0.08	0.02	0.03	0.04	0.00	0.00	0.00	0.06	0.00
Totals	56.1	0.94	5543	4.75	1.65	0.95	0.21	0.65	0.25	0.07	0.11	0.12	0.01	0.00	0.00	0.29	0.02

Aircraft/Mode	Touch and Go			Emissions (Pounds)													
Touch and Go	Time in Mode (TIM)		Fuel Usage	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours															
KC-135 (2)																	
Take-off (Military)	0.70	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.50	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.20	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2299	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
KC-46A (2)																	
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2899	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01



Table D3.3-6. Annual Air Operations for Aircraft at Pease - Baseline

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-135	614	2456	6140

Table D3.3-7. KC-135 AirCraft Closed Pattern Operations at Pease

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)					
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	70%	73%	85%
KC-135 VFR Profile	0.6225	1529	1.08073231	1.05954148	3.23876605	0.6250811	0.10721551	0.60319134
KC-135 IFR Profile	0.3775	927	5.90400061	2.76893508	3.98841687	0.45137435	0.10721551	0.60319134
Total Ops		2456						

6.7145  
13.8231

Table D3.3-8. KC-135 Aircraft Closed Pattern Operations - Fuel Use and Emission Factors, Baseline

Factor			Engine Setting/Time in Mode per Operation (Minutes)					
			55%	58%	60%	70%	73%	85%
Fuel Use, lbs/hr			19910.88	20916.72	21922.56	25945.92	27589.32	31204.8
Emission Factors, lbs/1000 lbs fuel								
VOC			0.0704	0.0683	0.0661	0.0575	0.0539	0.0460
CO			1.6313	1.3744	1.1175	0.0900	0.0900	0.0900
NOx			13.0750	13.5625	14.0500	16.0000	16.7813	18.5000
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
PM2.5			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
CO2			3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.3-9. KC-135 Aircraft Closed Pattern Operations - Emissions Per Operation, Baseline

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 CA VFR Right Turns South Side			0.1614	2.4721	37.2809	2.6974	0.1393	0.1393	8183.7166	0.2265	0.2545
KC-135 CC IFR Right Turns Southwest Side			0.3286	6.2014	68.9372	5.2364	0.2676	0.2676	15886.9857	0.4397	0.4940

Emissions, closed pattern ops, tons/year

0.2757	4.7645	60.4558	4.4894	0.2305	0.2305	13620.6084	0.3769	0.4235
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Table D3.3-10. Annual Air Emissions for KC-135 Aircraft Operations at Pease - Baseline

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 LTOs	2.13	31.52	13.49	1.80	0.10	0.10	5452.70	0.15	0.17
KC-135 T&G	0.28	4.76	60.46	4.49	0.23	0.23	13620.61	0.38	0.42
Total Existing	2.41	36.29	73.94	6.29	0.33	0.33	19073.31	0.53	0.59

Table D3.3-11. Annual HAP Emissions for KC-135 Aircraft Operations at Pease - Baseline

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-135 LTOs	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.10	0.01
KC-135 Closed Pattern Ops	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.11	0.01
Total Existing	0.13	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.21	0.02

Table D3.3-12. JP-8 AGE Equipment Emissions, Pease, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-135 AGE																	
Sorties:	614																
	Hours/Sortie																
Generator AM32A-86	10	6140.00	6.47	51298.71	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	8.26E+01	6.19E+00	3.98E+00	1.23E+00	1.20E+00	6.23E-01
Start Cart AM32A-60A	1	614.00	10.16	6239.03	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	2.46E+00	7.42E+00	3.65E-01	2.86E-01	2.77E-01	9.72E-02
Start Cart AM32A-95	0.1	61.40	8.75	537.25	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	1.99E-01	7.93E-01	9.48E-02	1.49E-02	1.45E-02	8.37E-03
Heater/AC Ace 802-993 AC	10	6140.00	6.80	94278.71	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	3.98E+01	2.03E+00	2.76E+00	2.68E+00	2.60E+00	6.50E-01
MA-3C Air Conditioner	2	1228.00	7.12	8318.71	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	1.13E+01	8.58E-01	1.43E-01	2.95E-01	2.84E-01	1.35E-01
H1	5	3070.00	0.39	1126.49	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.07E+00	1.23E+00	6.77E-01	7.38E-01	7.38E-01	2.03E-02
1H1	4	2456.00	0.39	901.19	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	8.56E-01	9.80E-01	5.41E-01	5.90E-01	5.90E-01	1.62E-02
Light Cart NF-2	2	1228.00	1.02	1247.81	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	2.98E-01	2.17E-01	2.71E-02	2.71E-02	2.71E-02	1.94E-02
Air Compressor MC-1A	0.33	202.62	1.09	210.46	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	1.87E-01	1.19E-01	1.19E-01	3.17E-02	3.04E-02	3.57E-03
Total JP-8 AGE, Tons/year				hp-hrs	2907948.208							6.94E-02	9.91E-03	4.35E-03	2.95E-03	2.88E-03	7.86E-04

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.3-13. AGE HAP Emissions, Pease, Baseline

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	1.57E+01	7.00E-02	
Acrolein		6.48E-04	1.88E+00		
Benzene	7.65E-03	6.50E-03	1.89E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	7.97E-01		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	2.41E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	1.73E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	3.49E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	8.43E+00		
Xylenes		2.00E-03	5.82E+00		
Total			7.12E-03		

Table D3.3-14. JP-8 AGE Equipment GHG Emissions, Pease, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-135 AGE											
Sorties:	614										
	Hours/Sortie										
Generator AM32A-86	10	6140.00	6.47	51298.71	148	2.11E+01	5.91E-04	6.80E-04	1.08E+06	3.03E+01	3.49E+01
Start Cart AM32A-60A	1	614.00	10.16	6239.03	180	2.11E+01	5.91E-04	6.80E-04	1.32E+05	3.69E+00	4.24E+00
Start Cart AM32A-95	0.1	61.40	8.75	537.25	155	2.11E+01	5.91E-04	6.80E-04	1.13E+04	3.18E-01	3.65E-01
Heater/AC Ace 802-993 AC	10	6140.00	6.80	94278.71	272	2.11E+01	5.91E-04	6.80E-04	1.99E+06	5.57E+01	6.41E+01
MA-3C Air Conditioner	2	1228.00	7.12	8318.71	120	2.11E+01	5.91E-04	6.80E-04	1.76E+05	4.92E+00	5.66E+00
H1	5	3070.00	0.39	1126.49	6.5	2.11E+01	5.91E-04	6.80E-04	2.38E+04	6.66E-01	7.66E-01
1H1	4	2456.00	0.39	901.19	6.5	2.11E+01	5.91E-04	6.80E-04	1.90E+04	5.33E-01	6.13E-01
Light Cart NF-2	2	1228.00	1.02	1247.81	18	2.11E+01	5.91E-04	6.80E-04	2.63E+04	7.37E-01	8.49E-01
Air Compressor MC-1A	0.33	202.62	1.09	210.46	18.4	2.11E+01	5.91E-04	6.80E-04	4.44E+03	1.24E-01	1.43E-01
Total JP-8 AGE, Metric Tons/year									1.57E+03	4.40E-02	5.06E-02

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.3-15. Aircraft Engine Emissions - Engine Tests, Pease, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-135																	
Defueling	15	Idle	0.50	1	1,014	2.1	30.7	4.0	1.1	0.1	0.1	16.00	233.42	30.41	8.06	0.46	0.46
Maintenance Run	61	Idle	0.33	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	173.52	2,531.29	329.81	87.40	4.95	4.95
TRT Run 2 Engine	7	Idle	0.17	2	1,014	2.1	30.7	4.0	1.1	0.1	0.1	4.98	72.62	9.46	2.51	0.14	0.14
	7	80% RPM	0.08	2	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.42	0.82	168.38	9.65	1.00	1.00
TRT Run 4 Engine	5	Idle	0.17	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	7.11	103.74	13.52	3.58	0.20	0.20
	5	80% RPM	0.08	4	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.60	1.17	240.54	13.78	1.43	1.43
												0.10	1.47	0.40	0.06	0.00	0.00

Table D3.3-16. HAP Emissions, Engine Tests, Pease, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-135																				
Defueling	15	Idle	0.50	1	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
Maintenance Run	61	Idle	0.33	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
TRT Run 2 Engine	7	Idle	0.17	2	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	7	80% RPM	0.08	2	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
TRT Run 4 Engine	5	Idle	0.17	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	5	80% RPM	0.08	4	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
						Emissions, lbs/yr														Total HAPs, TPY
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
						0.72	0.00	0.00	0.02	0.01	0.07	0.01	0.01	0.01	0.02	0.01	0.01	0.51	0.04	
						7.84	0.00	0.00	0.24	0.16	0.74	0.06	0.14	0.12	0.19	0.08	0.08	5.57	0.40	
						0.22	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.01	
						0.06	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.02	
						0.32	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.23	0.02	
						0.09	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.03	0.03	
						0.00463278	0	0	0.00013891	0.00010328	0.00044193	3.2764E-05	8.2749E-05	7.0892E-05	0.00012369	4.74573E-05	5.17164E-05	0.00025962	0.00025906	

Table D3.3-17. GHG Emissions, Engine Tests, Pease, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-135											
Defueling	15	Idle	0.50	1	1,014	3,216.0	0.1	0.1	24,451.89	0.68	0.76
Maintenance Run	61	Idle	0.33	4	1,014	3,216.0	0.1	0.1	265,167.18	7.34	8.25
TRT Run 2 Engine	7	Idle	0.17	2	1,014	3,216.0	0.1	0.1	7,607.26	0.21	0.24
	7	80% RPM	0.08	2	7801.2	3,216.0	0.1	0.1	29,270.10	0.81	0.91
TRT Run 4 Engine	5	Idle	0.17	4	1,014	3,216.0	0.1	0.1	10,867.51	0.30	0.34
	5	80% RPM	0.08	4	7801.2	3,216.0	0.1	0.1	41,814.43	1.16	1.30
<b>Total, tpy</b>									172	0.00	0.01

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.3-18. Annual Worker Population and VMT at Pease - KC-46A Project Scenarios

Scenario	Total # of Workers	Annual On-Base VMT	Annual Off-Base VMT
Existing	1099	285740	1028664
Proposed Action	1227	319020	1148472

<sup>1</sup> On-Base mileage based on 1.00 miles from 2009 AEI; assume 260 days/year<sup>2</sup> Off-Base mileage based on distance to downtown Portsmouth, 3.60 miles; assume 260 days/year

Table D3.3-19. Annual Average On-Road Vehicle Emission Factors - Pease

Scenario/Vehicle Class	Emission Factors (Grams/Mile)							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	0.567	11.64	0.455	0.007	0.025	0.011	368.1
LDDT	0.03	0.132	0.808	0.2	0.003	0.053	0.037	314
LDGT	60.32	0.825	13.66	0.728	0.01	0.025	0.011	516.1
LDDT	0.2	0.393	0.708	0.46	0.006	0.06	0.044	599.2
HDGV	0	1.021	29.59	1.222	0.017	0.049	0.032	905.3
HDDV	0	0.684	2.315	3.359	0.012	0.129	0.1	1245.6
MC	1.9	2.73	28.73	0.9	0.003	0.037	0.021	177.4
Proposed Action (Year 2018) (1)								
LDGV	37.55	0.432	10.69	0.324	0.007	0.025	0.011	368
LDDT	0.03	0.087	0.692	0.088	0.003	0.038	0.023	314.1
LDGT	60.32	0.662	11.91	0.545	0.01	0.025	0.011	516.6
LDDT	0.2	0.305	0.6	0.317	0.006	0.047	0.032	598.6
HDGV	0	0.739	27.82	0.689	0.017	0.04	0.025	904
HDDV	0	0.583	1.428	1.919	0.012	0.078	0.053	1245.9
MC	1.9	2.73	28.73	0.9	0.003	0.037	0.021	177.4

Notes: (1) Emission factors from AFCEC 2013, Table 5-13, for 2017 used to provide a conservative estimate of emissions for 2018

Table D3.3-20. Annual Average On-Base Vehicle Emissions, Pease

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	134.12	2753.41	107.63	1.66	5.91	2.60	87072.96
LDDT	0.03	0.02	0.15	0.04	0.00	0.01	0.01	59.34
LDGT	60.32	313.49	5190.62	276.63	3.80	9.50	4.18	196111.36
LDDT	0.2	0.50	0.89	0.58	0.01	0.08	0.06	754.93
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	32.68	343.87	10.77	0.04	0.44	0.25	2123.32
Total Existing, tons/year		0.24040363	4.14447428	0.19782454	0.00274987	0.00797091	0.00354783	143.060961
Proposed Action (Year 2018) (1)								
LDGV	37.55	114.09	2823.20	85.57	1.85	6.60	2.91	97187.90
LDDT	0.03	0.02	0.15	0.02	0.00	0.01	0.00	66.27
LDGT	60.32	280.85	5052.75	231.21	4.24	10.61	4.67	219164.48
LDDT	0.2	0.43	0.84	0.45	0.01	0.07	0.05	842.02
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	36.48	383.92	12.03	0.04	0.49	0.28	2370.62
Total Proposed Action, tons/year		0.21593421	4.13043111	0.16463595	0.00307014	0.00888855	0.00395112	159.815646

Table D3.3-21. Annual Average Off-Base Vehicle Emissions, Pease

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	482.84	9912.27	387.46	5.96	21.29	9.37	313462.67
LDDT	0.03	0.09	0.55	0.14	0.00	0.04	0.03	213.63
LDGT	60.32	1128.56	18686.25	995.87	13.68	34.20	15.05	706000.91
LDDT	0.2	1.78	3.21	2.09	0.03	0.27	0.20	2717.76
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	117.63	1237.94	38.78	0.13	1.59	0.90	7643.94
Total Existing, tons/year		0.86545308	14.9201074	0.71216834	0.00989952	0.02869528	0.01277218	515.019458
Proposed Action (Year 2018) (1)								
LDGV	37.55	367.88	9103.28	275.91	5.96	21.29	9.37	313377.51
LDDT	0.03	0.06	0.47	0.06	0.00	0.03	0.02	213.70
LDGT	60.32	905.59	16292.33	745.53	13.68	34.20	15.05	706684.89
LDDT	0.2	1.38	2.72	1.44	0.03	0.21	0.15	2715.04
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	117.63	1237.94	38.78	0.13	1.59	0.90	7643.94
Total Proposed Action, tons/year		0.69626905	13.3183681	0.53086038	0.00989952	0.02866069	0.0127402	515.317541

Table D3.3-22. Annual Air Operations for Aircraft at Pease - Proposed Action

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-46A	884	3536	8840

Table D3.3-23. KC-46A Aircraft Closed Pattern Operations at Pease - KC-46A Proposed Scenarios

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)						
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	68%	73%	83%	85%
KC-46A VFR Profile	0.8924	3156	1.52770185	1.04541426	2.57545944	0.66856113	0.06861792	0.3602441	0.39626852
KC-46A IFR Profile	0.1076	380	5.24755579	1.580018	4.11836013	1.16386557	0.06861792	0.39455307	0.33222512
Total Ops		3536							

Table D3.3-24. KC-46A Aircraft Closed Pattern Operations - Fuel Use and Emission Factors

Factor			Engine Setting/Time in Mode per Operation (Minutes)						
			55%	58%	60%	68%	73%	83%	85%
Fuel Use, lbs/hr			22572	23688.8	24805.6	28379.36	30389.6	34928	36116
Emission Factors, lbs/1000 lbs									
VOC			0.0920	0.0909	0.0897	0.0860	0.0840	0.0819	0.0834
CO			1.2150	1.1435	1.0720	0.8432	0.7145	0.5138	0.5275
NOx			19.0750	19.7655	20.4560	22.6656	23.9085	27.0275	28.0750
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0600	0.0610	0.0620	0.0652	0.0670	0.0713	0.0725
PM2.5			0.0500	0.0510	0.0520	0.0552	0.0570	0.0613	0.0625
CO2			3216	3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.3-25. KC-46A Aircraft Closed Pattern Operations - Emissions Per Operation

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A CA VFR Right Turns South Side			0.2531	2.8367	61.2646	3.0225	0.1809	0.1523	9170.2396	0.2538	0.2851
KC-46A CC IFR Right Turns Southwest Side			0.4768	5.6496	109.9461	5.6344	0.3311	0.2780	17094.6253	0.4731	0.5315
Emissions, closed pattern ops, tons/year			0.4900	5.5504	117.5768	5.8407	0.3483	0.2932	17720.4935	0.4904	0.5510



Table D3.3-26. Annual Air Emissions for KC-46A Aircraft Operations at Pease - Proposed Action

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A LTOs	14.71	51.10	33.54	2.60	0.21	0.19	7879.51	0.22	0.25
KC-46A T&G	0.49	5.55	117.58	5.84	0.35	0.29	17720.49	0.49	0.55
APU	0.04	0.31	6.30	0.52	0.05	0.04	1286.56	0.00	0.00
Total Proposed Action	15.24	56.95	157.41	8.96	0.61	0.52	26886.56	0.71	0.80

Table D3.3-27. Annual HAP Emissions for KC-46A Aircraft Operations at Pease - Proposed Action

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-46A LTOs	2.10	0.73	0.42	0.09	0.29	0.11	0.03	0.05	0.05	0.01	0.00	0.00	0.13	0.01
KC-46A Closed Pattern Ops	0.07	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.21	0.02
Total Proposed Action	2.17	0.75	0.43	0.10	0.30	0.11	0.03	0.05	0.05	0.01	0.01	0.00	0.34	0.02

Table D3.3-28. JP-8 AGE Equipment Emissions, Proposed Action, Pease

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-46A AGE																	
Sorties:	884																
	Hours/Sortie																
Generator AM32A-86	10	8840.00	6.47	73856.77	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.19E+02	8.91E+00	5.73E+00	1.77E+00	1.73E+00	8.96E-01
Start Cart AM32A-60A	1	884.00	10.16	8982.58	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	3.55E+00	1.07E+01	5.26E-01	4.11E-01	4.00E-01	1.40E-01
Start Cart AM32A-95	0.1	88.40	8.75	773.50	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	2.86E-01	1.14E+00	1.36E-01	2.14E-02	2.09E-02	1.21E-02
Heater/AC Ace 802-993 AC	10	8840.00	6.80	135736.77	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	5.73E+01	2.92E+00	3.98E+00	3.86E+00	3.74E+00	9.35E-01
MA-3C Air Conditioner	2	1768.00	7.12	11976.77	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	1.62E+01	1.24E+00	2.07E-01	4.25E-01	4.09E-01	1.95E-01
H1	5	4420.00	0.39	1621.85	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.54E+00	1.76E+00	9.74E-01	1.06E+00	1.06E+00	2.92E-02
1H1	4	3536.00	0.39	1297.48	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.23E+00	1.41E+00	7.80E-01	8.50E-01	8.50E-01	2.34E-02
Light Cart NF-2	2	1768.00	1.02	1796.52	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	4.29E-01	3.12E-01	3.90E-02	3.90E-02	3.90E-02	2.80E-02
Air Compressor MC-1A	0.33	291.72	1.09	303.01	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	2.69E-01	1.72E-01	1.72E-01	4.57E-02	4.37E-02	5.15E-03
Total JP-8 AGE, Tons/year				hp-hrs	4186687.648							9.99E-02	1.43E-02	6.27E-03	4.24E-03	4.15E-03	1.13E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.3-29. AGE HAP Emissions, Proposed Action, Pease

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	2.26E+01	7.00E-02	
Acrolein		6.48E-04	2.71E+00		
Benzene	7.65E-03	6.50E-03	2.72E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.15E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	3.47E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	2.49E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	5.02E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.21E+01		
Xylenes		2.00E-03	8.37E+00		
<b>Total</b>			<b>1.03E-02</b>		

Table D3.3-30. JP-8 AGE Equipment GHG Emissions, Proposed Action, Pease

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-46A AGE											
Sorties:	884										
	Hours/Sortie										
Generator AM32A-86	10	8840.00	6.47	73856.77	148	2.11E+01	5.91E-04	6.80E-04	1.56E+06	4.36E+01	5.02E+01
Start Cart AM32A-60A	1	884.00	10.16	8982.58	180	2.11E+01	5.91E-04	6.80E-04	1.90E+05	5.31E+00	6.11E+00
Start Cart AM32A-95	0.1	88.40	8.75	773.50	155	2.11E+01	5.91E-04	6.80E-04	1.63E+04	4.57E-01	5.26E-01
Heater/AC Ace 802-993 AC	10	8840.00	6.80	135736.77	272	2.11E+01	5.91E-04	6.80E-04	2.86E+06	8.02E+01	9.23E+01
MA-3C Air Conditioner	2	1768.00	7.12	11976.77	120	2.11E+01	5.91E-04	6.80E-04	2.53E+05	7.08E+00	8.14E+00
H1	5	4420.00	0.39	1621.85	6.5	2.11E+01	5.91E-04	6.80E-04	3.42E+04	9.59E-01	1.10E+00
1H1	4	3536.00	0.39	1297.48	6.5	2.11E+01	5.91E-04	6.80E-04	2.74E+04	7.67E-01	8.82E-01
Light Cart NF-2	2	1768.00	1.02	1796.52	18	2.11E+01	5.91E-04	6.80E-04	3.79E+04	1.06E+00	1.22E+00
Air Compressor MC-1A	0.33	291.72	1.09	303.01	18.4	2.11E+01	5.91E-04	6.80E-04	6.39E+03	1.79E-01	2.06E-01
<b>Total JP-8 AGE, Metric Tons/year</b>									<b>2.26E+03</b>	<b>6.34E-02</b>	<b>7.29E-02</b>

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.3-31. Aircraft Engine Emissions - Engine Tests, Proposed Action, Pease

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-46A																	
Defueling	22	Idle	0.50	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	228.49	779.56	69.16	19.39	2.01	1.83
Maintenance Run	88	Idle	0.33	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	1,218.61	4,157.65	368.83	103.43	10.73	9.76
TRT Run 1 Engine	10	Idle	0.17	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	34.62	118.11	10.48	2.94	0.30	0.28
	10	80% RPM	0.08	1	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	1.13	7.03	365.23	14.90	0.98	0.84
TRT Run 2 Engine	8	Idle	0.17	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	55.39	188.98	16.77	4.70	0.49	0.44
	8	80% RPM	0.08	2	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	1.81	11.25	584.36	23.84	1.57	1.35
												0.77	2.63	0.71	0.08	0.01	0.01

Table D3.3-32. HAP Emissions, Engine Tests, Proposed Action, Pease

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-46A																				
Defueling	22	Idle	0.50	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
Maintenance Run	88	Idle	0.33	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
TRT Run 2 Engine	10	Idle	0.17	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
	10	80% RPM	0.08	1	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
TRT Run 4 Engine	8	Idle	0.17	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
	8	80% RPM	0.08	2	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
						Emissions, lbs/yr														Total HAPs, TPY
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
						11.32	6.49	1.43	4.46	1.70	0.46	0.75	0.82	0.06	0.02	0.02	1.23	0.09	0.09	
						60.39	34.62	7.65	23.77	9.08	2.46	3.99	4.37	0.32	0.09	0.09	6.59	0.47	0.47	
						1.72	0.98	0.22	0.68	0.26	0.07	0.11	0.12	0.01	0.00	0.00	0.19	0.01	0.01	
						0.16	0.06	0.03	0.01	0.02	0.01	0.00	0.00	0.00	0.02	0.01	0.01	0.71	0.04	
						2.74	1.57	0.35	1.08	0.41	0.11	0.18	0.20	0.01	0.00	0.00	0.30	0.02	0.02	
						0.26	0.09	0.05	0.01	0.04	0.01	0.00	0.01	0.01	0.04	0.02	0.01	1.14	0.06	
						0.03829426	0.02190906	0.00486654	0.01500001	0.00575329	0.00156476	0.00251865	0.00276341	0.00020897	8.83493E-05	7.40798E-05	0.004163144	0.0012232	0.00034488	
						0.098777262														

Table D3.3-33. GHG Emissions, Engine Tests, Proposed Action, Pease

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-46A											
Defueling	22	Idle	0.50	1	1,663	3,216.0	0.1	0.1	58,837.36	1.63	1.83
Maintenance Run	88	Idle	0.33	2	1,663	3,216.0	0.1	0.1	313,799.27	8.68	9.76
TRT Run 2 Engine	10	Idle	0.17	1	1,663	3,216.0	0.1	0.1	8,914.75	0.25	0.28
	10	80% RPM	0.08	1	16869.6	3,216.0	0.1	0.1	45,210.53	1.25	1.41
TRT Run 4 Engine	8	Idle	0.17	2	1,663	3,216.0	0.1	0.1	14,263.60	0.39	0.44
	8	80% RPM	0.08	2	16869.6	3,216.0	0.1	0.1	72,336.84	2.00	2.25
<b>Total, tpy</b>									233	0.01	0.01

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.3-34. Pease Comparison of Emissions

Annual Emissions, tons/year						
Baseline	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	2.41	36.29	73.94	6.29	0.33	0.33
AGE	0.00	0.01	0.07	0.00	0.00	0.00
Engine Tests	0.10	1.47	0.40	0.06	0.00	0.00
POVs	1.11	19.06	0.91	0.01	0.04	0.02
<b>Total</b>	<b>3.62</b>	<b>56.84</b>	<b>75.32</b>	<b>6.36</b>	<b>0.37</b>	<b>0.35</b>
Proposed Action	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	15.24	56.95	157.41	8.96	0.61	0.52
AGE	0.01	0.01	0.10	0.00	0.00	0.00
Engine Tests	0.77	2.63	0.71	0.08	0.01	0.01
POVs	0.91	17.45	0.70	0.01	0.04	0.02
<b>Total</b>	<b>16.93</b>	<b>77.05</b>	<b>158.92</b>	<b>9.06</b>	<b>0.66</b>	<b>0.55</b>
<b>Net Increase</b>	<b>13.31</b>	<b>20.21</b>	<b>83.60</b>	<b>2.70</b>	<b>0.28</b>	<b>0.19</b>

Table D3.3-35. Pease Comparison of HAP Emissions

Annual HAP Emissions, tons/year														
Baseline	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	0.13	0.00	0.00	0.00	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.21	0.02
AGE	0.01	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.14</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	<b>0.02</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.21</b>	<b>0.02</b>
Proposed Action	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	2.17	0.75	0.43	0.10	0.30	0.11	0.03	0.05	0.05	0.01	0.01	0.00	0.34	0.02
AGE	0.02	0.01	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.04	0.02	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>2.22</b>	<b>0.79</b>	<b>0.44</b>	<b>0.11</b>	<b>0.32</b>	<b>0.12</b>	<b>0.03</b>	<b>0.05</b>	<b>0.05</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.34</b>	<b>0.02</b>
<b>Net Increase</b>	<b>2.08</b>	<b>0.78</b>	<b>0.44</b>	<b>0.11</b>	<b>0.30</b>	<b>0.09</b>	<b>0.03</b>	<b>0.04</b>	<b>0.05</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.12</b>	<b>0.01</b>

Table D3.3-36. Pease Comparison of GHG Emissions

Annual GHG Emissions, metric tons/year				
Baseline	CO2	CH4	N2O	CO2e
Aircraft Ops	17303	0.48	0.54	17480
AGE	1571	0.04	0.05	1588
Engine Tests	172	0.00	0.01	174
POVs	597	0.00	0.00	597
<b>Total</b>	<b>19643</b>	<b>0.53</b>	<b>0.59</b>	<b>19839</b>
Proposed Action	CO2	CH4	N2O	
Aircraft Ops	24391	0.64	0.72	24629
AGE	2262	0.06	0.07	2286
Engine Tests	233	0.01	0.01	235
POVs	612	0.00	0.00	612
<b>Total</b>	<b>27499</b>	<b>0.71</b>	<b>0.80</b>	<b>27762</b>
<b>Net Increase</b>	<b>7855</b>	<b>0.18</b>	<b>0.21</b>	<b>7924</b>



**Pittsburgh ANG**



Table D3.4-1. Engine Emission Factors by Throttle Setting - KC-135 and KC-46A Aircraft

Engine Type/Throttle Setting	Fuel Flow (Pounds/Hour)	Emission Factors, lbs/1000 lbs fuel								
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
F-108-CF-100 (2)										
Idle	1013.76	2.1045	30.7	4	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Approach	2463.12	0.092	4.2	8.2	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Intermediate	6486.48	0.0575	0.09	16	1.06	0.05	0.05	3216	8.90E-02	1.00E-01
Military	7801.2	0.046	0.09	18.5	1.06	0.07	0.07	3216	8.90E-02	1.00E-01
P&W 4062 (3)										
Idle	1663.2	12.489	42.61	3.78	1.06	0.11	0.1	3216	8.90E-02	1.00E-01
Approach	5702.4	0.1035	1.93	12.17	1.06	0.05	0.04	3216	8.90E-02	1.00E-01
Climbout	16869.6	0.0805	0.5	25.98	1.06	0.07	0.06	3216	8.90E-02	1.00E-01
Take-Off	21621.6	0.092	0.61	34.36	1.06	0.08	0.07	3216	8.90E-02	1.00E-01
		Emissions, Pounds/Hour								
APU Use - P&W 4062		0.04	0.33	6.72	0.56	0.05	0.04	1373		

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013).

(3) ICAO Engine Exhaust Emissions Data Bank - Subsonic Engines - (ICAO 2013).

Table D3.4-2. HAP Emission Factors - KC-135 and KC-46A Aircraft

Engine Type	Emission Factor (lb/1000 lb fuel) (1)													
	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
<i>F108-CF-100</i>														
Idle	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.50E-02	0.00E+00	0.00E+00	0.00E+00	3.22E-03	6.23E-03	5.53E-04	1.61E-03	0.00E+00	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	5.58E-03	0.00E+00	0.00E+00	0.00E+00	4.25E-04	1.42E-03	0.00E+00	5.42E-04	0.00E+00	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03
<i>P&amp;W 4062 (3)</i>														
Idle	1.78E+00	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.48E-02	5.13E-03	2.94E-03	6.50E-04	2.02E-03	7.71E-04	2.09E-04	3.39E-04	3.71E-04	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	1.31E-02	4.56E-03	2.61E-03	5.78E-04	1.79E-03	6.85E-04	1.86E-04	3.01E-04	3.30E-04	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03

Notes: (1) Data are for one engine. The KC-135 has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013), Table 2-9.



Table D3.4-3. Land and Take-off/Touch and Go Times in Mode and Fuel Usages - KC-135 and KC-46A Aircraft

Aircraft/Mode (Engine Throttle Setting)	LTO			Touch & Go	
	Time in Mode (TIM)		Fuel Usage	TIM	Fuel Usage
	Minutes	Hours	Pounds	Hours	Pounds
<i>KC-135 (2)</i>					
Taxi Out (Idle)	32.8	0.55	2217		
Take-off (Military)	0.7	0.01	364	0.01	364
Climbout (Intermediate)	2.5	0.04	1081	0.04	1081
Approach	5.2	0.09	854	0.09	854
Taxi In (Idle)	14.9	0.25	1007		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5523</b>	<b>0.14</b>	<b>2299</b>
<i>KC-46A (2)</i>					
Taxi Out (Idle)	32.8	0.55	1818		
Take-off (Military)	0.7	0.01	505	0.01	505
Climbout (Intermediate)	2.5	0.04	1406	0.04	1406
Approach	5.2	0.09	988	0.09	988
Taxi In (Idle)	14.9	0.25	826		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5543</b>	<b>0.14</b>	<b>2899</b>
<i>APU Use, KC-46A (3)</i>		<b>Hours</b>			
Pre-Flight - OBIGGS + Electric + Max ECS		1.50			
Pre-Flight - Main Engine Start + Electric		0.03			
Post-Flight - Electric + Min ECS		0.58			
<b>Total Hours per LTO</b>		<b>2.12</b>			

Notes: (1) Fuel usage per aircraft.

(2) TIM Data from Table 2-4, Transport Aircraft (AFCEC 2013).

(3) APU use from FTU/MOB1 Draft EIS.

Table D3.4-4. Land and Take-off/Touch and Go Total Fuel Usages and Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)								
LTOs	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Taxi Out (Idle)	32.8	0.55	2217	4.67	68.05	8.87	2.35	0.13	0.13	7129.08	0.20	0.22
Take-off (Military)	0.7	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.5	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.2	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Taxi In (Idle)	14.9	0.25	1007	2.12	30.91	4.03	1.07	0.06	0.06	3238.52	0.09	0.10
Totals	56.1	0.935	5523	6.94	102.69	43.93	5.85	0.32	0.32	17761.24	0.49	0.55
KC-46A (2)												
Taxi Out (Idle)	32.8	0.55	1818	22.71	77.48	6.87	1.93	0.20	0.18	5848.08	0.16	0.18
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Taxi In (Idle)	14.9	0.25	826	10.32	35.20	3.12	0.88	0.09	0.08	2656.60	0.07	0.08
Totals	56.1	0.935	5543	33.29	115.60	75.88	5.88	0.48	0.42	17826.96	0.49	0.55

Aircraft/Mode	Touch and Go			Emissions (Pounds)								
Touch and Go	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Take-off (Military)	0.70	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.50	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.20	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Totals	8.40	0.14	2299	0.16	3.72	31.03	2.44	0.13	0.13	7393.64	0.20	0.23
KC-46A (2)												
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Totals	8.40	0.14	2899	0.26	2.92	65.89	3.07	0.19	0.16	9322.28	0.26	0.29

Table D3.4-5. Land and Take-off/Touch and Go Total Fuel Usages and HAP Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)													
LTOs	Time in Mode (TIM)		Fuel Usage	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Taxi Out (Idle)	32.8	0.55	2217	0.21	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.01
Take-off (Military)	0.7	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.2	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	1007	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Totals	56.1	0.94	5523	0.33	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.31	0.02
KC-46A (2)																	
Taxi Out (Idle)	32.8	0.55	1818	3.24	1.13	0.65	0.14	0.44	0.17	0.05	0.07	0.08	0.01	0.00	0.00	0.12	0.01
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	826	1.47	0.51	0.29	0.06	0.20	0.08	0.02	0.03	0.04	0.00	0.00	0.00	0.06	0.00
Totals	56.1	0.94	5543	4.75	1.65	0.95	0.21	0.65	0.25	0.07	0.11	0.12	0.01	0.00	0.00	0.29	0.02

Aircraft/Mode	Touch and Go		Emissions (Pounds)														
Touch and Go	Time in Mode (TIM)		Fuel Usage Pounds	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours															
KC-135 (2)																	
Take-off (Military)	0.70	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.50	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.20	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2299	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
KC-46A (2)																	
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2899	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

Table D3.4-6. Annual Air Operations for Aircraft at Pittsburgh - Baseline

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-135	926	2545.5	6943

Table D3.4-7. KC-135 Aircraft Closed Pattern Operations at Pittsburgh, Baseline

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)					
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	70%	73%	85%
KC-135 VFR Profile	1	2546	1.08073231	1.05954148	3.23876605	0.6250811	0.10721551	0.60319134
KC-135 IFR Profile	0	0	5.90400061	2.76893508	3.98841687	0.45137435	0.10721551	0.60319134
Total Ops		2545.5						

Table D3.4-8. KC-135 Aircraft Closed Pattern Operations - Fuel Use and Emission Factors, Baseline

Factor			Engine Setting/Time in Mode per Operation (Minutes)					
			55%	58%	60%	70%	73%	85%
Fuel Use, lbs/hr			19910.88	20916.72	21922.56	25945.92	27589.32	31204.8
Emission Factors, lbs/1000 lbs fuel								
VOC			0.0704	0.0683	0.0661	0.0575	0.0539	0.0460
CO			1.6313	1.3744	1.1175	0.0900	0.0900	0.0900
NOx			13.0750	13.5625	14.0500	16.0000	16.7813	18.5000
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
PM2.5			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
CO2			3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.4-9. KC-135 Aircraft Closed Pattern Operations - Emissions Per Operation, Baseline

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 CA VFR Right Turns South Side			0.1614	2.4721	37.2809	2.6974	0.1393	0.1393	8183.7166	0.2265	0.2545
KC-135 CC IFR Right Turns Southwest Side			0.3286	6.2014	68.9372	5.2364	0.2676	0.2676	15886.9857	0.4397	0.4940
Emissions, closed pattern ops, tons/year			0.2054	3.1464	47.4492	3.4331	0.1773	0.1773	10415.8252	0.2882	0.3239

Table D3.4-10. Annual Air Emissions for KC-135 Aircraft Operations at Pittsburgh - Baseline

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 LTOs	3.21	47.54	20.34	2.71	0.15	0.15	8223.46	0.23	0.26
KC-135 T&G	0.21	3.15	47.45	3.43	0.18	0.18	10415.83	0.29	0.32
Total Existing	3.42	50.69	67.79	6.14	0.33	0.33	18639.28	0.52	0.58

Table D3.4-11. Annual HAP Emissions for KC-135 Aircraft Operations at Pittsburgh - Baseline

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-135 LTOs	0.15	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.14	0.01
KC-135 Closed Pattern Ops	0.03	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01
Total Existing	0.18	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.26	0.02

Table D3.4-12. JP-8 AGE Equipment Emissions, Pittsburgh, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-135 AGE																	
Sorties:	926																
	Hours/Sortie																
Generator AM32A-86	10	9260.00	6.47	77365.81	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.25E+02	9.33E+00	6.00E+00	1.86E+00	1.82E+00	9.39E-01
Start Cart AM32A-60A	1	926.00	10.16	9409.35	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	3.72E+00	1.12E+01	5.51E-01	4.31E-01	4.19E-01	1.47E-01
Start Cart AM32A-95	0.1	92.60	8.75	810.25	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	3.00E-01	1.20E+00	1.43E-01	2.25E-02	2.18E-02	1.26E-02
Heater/AC Ace 802-993 AC	10	9260.00	6.80	142185.81	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	6.00E+01	3.06E+00	4.16E+00	4.04E+00	3.92E+00	9.80E-01
MA-3C Air Conditioner	2	1852.00	7.12	12545.81	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	1.70E+01	1.29E+00	2.16E-01	4.45E-01	4.29E-01	2.04E-01
H1	5	4630.00	0.39	1698.91	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.61E+00	1.85E+00	1.02E+00	1.11E+00	1.11E+00	3.06E-02
1H1	4	3704.00	0.39	1359.13	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.29E+00	1.48E+00	8.17E-01	8.90E-01	8.90E-01	2.45E-02
Light Cart NF-2	2	1852.00	1.02	1881.87	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	4.49E-01	3.27E-01	4.08E-02	4.08E-02	4.08E-02	2.93E-02
Air Compressor MC-1A	0.33	305.58	1.09	317.41	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	2.82E-01	1.80E-01	1.80E-01	4.78E-02	4.58E-02	5.39E-03
Total JP-8 AGE, Tons/year				hp-hrs	4385602.672							1.05E-01	1.50E-02	6.57E-03	4.44E-03	4.35E-03	1.19E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.4-13. AGE HAP Emissions, Pittsburgh, Baseline

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	2.37E+01	7.00E-02	
Acrolein		6.48E-04	2.84E+00		
Benzene	7.65E-03	6.50E-03	2.85E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.20E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	3.64E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	2.61E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	5.26E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.27E+01		
Xylenes		2.00E-03	8.77E+00		
Total			1.07E-02		

Table D3.4-14. JP-8 AGE Equipment GHG Emissions, Pittsburgh, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-135 AGE											
Sorties:	926										
	Hours/Sortie										
Generator AM32A-86	10	9260.00	6.47	77365.81	148	2.11E+01	5.91E-04	6.80E-04	1.63E+06	4.57E+01	5.26E+01
Start Cart AM32A-60A	1	926.00	10.16	9409.35	180	2.11E+01	5.91E-04	6.80E-04	1.99E+05	5.56E+00	6.40E+00
Start Cart AM32A-95	0.1	92.60	8.75	810.25	155	2.11E+01	5.91E-04	6.80E-04	1.71E+04	4.79E-01	5.51E-01
Heater/AC Ace 802-993 AC	10	9260.00	6.80	142185.81	272	2.11E+01	5.91E-04	6.80E-04	3.00E+06	8.40E+01	9.67E+01
MA-3C Air Conditioner	2	1852.00	7.12	12545.81	120	2.11E+01	5.91E-04	6.80E-04	2.65E+05	7.41E+00	8.53E+00
H1	5	4630.00	0.39	1698.91	6.5	2.11E+01	5.91E-04	6.80E-04	3.58E+04	1.00E+00	1.16E+00
1H1	4	3704.00	0.39	1359.13	6.5	2.11E+01	5.91E-04	6.80E-04	2.87E+04	8.03E-01	9.24E-01
Light Cart NF-2	2	1852.00	1.02	1881.87	18	2.11E+01	5.91E-04	6.80E-04	3.97E+04	1.11E+00	1.28E+00
Air Compressor MC-1A	0.33	305.58	1.09	317.41	18.4	2.11E+01	5.91E-04	6.80E-04	6.70E+03	1.88E-01	2.16E-01
Total JP-8 AGE, Metric Tons/year									2.37E+03	6.64E-02	7.64E-02

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.4-15. Aircraft Engine Emissions - Engine Tests, Pittsburgh, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-135																	
Defueling	17	Idle	0.50	1	1,014	2.1	30.7	4.0	1.1	0.1	0.1	18.13	264.54	34.47	9.13	1.05	1.05
Maintenance Run	69	Idle	0.33	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	196.28	2,863.26	373.06	98.86	11.36	11.36
TRT Run 2 Engine	8	Idle	0.17	2	1,014	2.1	30.7	4.0	1.1	0.1	0.1	5.69	82.99	10.81	2.87	0.33	0.33
	8	80% RPM	0.08	2	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.48	0.94	192.43	11.03	1.14	1.14
TRT Run 4 Engine	6	Idle	0.17	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	8.53	124.49	16.22	4.30	0.49	0.49
	6	80% RPM	0.08	4	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.72	1.40	288.64	16.54	1.71	1.71
												0.11	1.67	0.46	0.07	0.01	0.01

Table D3.4-16. HAP Emissions, Engine Tests, Pittsburgh, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)															
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate		
KC-135																					
Defueling	17	Idle	0.50	1	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
Maintenance Run	69	Idle	0.33	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
TRT Run 2 Engine	8	Idle	0.17	2	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
	8	80% RPM	0.08	2	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03		
TRT Run 4 Engine	6	Idle	0.17	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
	6	80% RPM	0.08	4	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03		
						Emissions, lbs/yr														Total HAPs, TPY	
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate		
						0.82	0.00	0.00	0.02	0.02	0.08	0.01	0.01	0.01	0.02	0.01	0.01	0.01	0.58		0.04
						8.87	0.00	0.00	0.27	0.18	0.84	0.06	0.15	0.14	0.22	0.09	0.09	6.30	0.45		
						0.26	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.18	0.01		
						0.07	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.01	0.02	0.03		
						0.39	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.01	0.01	0.00	0.00	0.27	0.02		
						0.11	0.00	0.00	0.00	0.02	0.02	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.04		
						0.00525704	0	0	0.00015753	0.00011764	0.00050169	3.7155E-05	9.3998E-05	8.0395E-05	0.000140823	5.39764E-05	5.88753E-05	0.00369213	0.00029492		0.01048617

Table D3.4-17. GHG Emissions, Engine Tests, Pittsburgh, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-135											
Defueling	17	Idle	0.50	1	1,014	3,216.0	0.1	0.1	27,712.14	0.77	0.86
Maintenance Run	69	Idle	0.33	4	1,014	3,216.0	0.1	0.1	299,943.20	8.30	9.33
TRT Run 2 Engine	8	Idle	0.17	2	1,014	3,216.0	0.1	0.1	8,694.01	0.24	0.27
	8	80% RPM	0.08	2	7801.2	3,216.0	0.1	0.1	33,451.55	0.93	1.04
TRT Run 4 Engine	6	Idle	0.17	4	1,014	3,216.0	0.1	0.1	13,041.01	0.36	0.41
	6	80% RPM	0.08	4	7801.2	3,216.0	0.1	0.1	50,177.32	1.39	1.56
<b>Total, tpy</b>									<b>196</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.4-18. Annual Worker Population and VMT at Pittsburgh - KC-46A Project Scenarios

Scenario	Total # of Workers	Annual On-Base VMT	Annual Off-Base VMT
Existing	1014	263640	4734974.4
Proposed Action	1037	269620	4842375.2

<sup>1</sup>On-Base mileage based on 1.00 miles from 2009 AEI; assume 260 days/year<sup>2</sup>Off-Base mileage based on distance to downtown Pittsburgh, 17.96 miles; assume 260 days/year

Table D3.4-19. Annual Average On-Road Vehicle Emission Factors - Pittsburgh

Scenario/Vehicle Class	Emission Factors (Grams/Mile)							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	0.586	10.45	0.446	0.007	0.025	0.011	368.1
LDDT	0.03	0.132	0.808	0.2	0.003	0.053	0.037	314
LDGT	60.32	0.831	12.34	0.707	0.01	0.025	0.011	516.1
LDDT	0.2	0.393	0.708	0.46	0.006	0.06	0.044	599.2
HDGV	0	1.066	28.64	1.21	0.017	0.049	0.032	905.3
HDDV	0	0.684	2.315	3.359	0.012	0.129	0.1	1245.6
MC	1.9	2.75	27.81	0.87	0.003	0.037	0.021	177.4
Proposed Action (Year 2018) (1)								
LDGV	37.55	0.446	9.55	0.318	0.007	0.025	0.011	368
LDDT	0.03	0.087	0.692	0.088	0.003	0.038	0.023	314.1
LDGT	60.32	0.668	10.77	0.53	0.01	0.025	0.011	516.6
LDDT	0.2	0.305	0.6	0.317	0.006	0.047	0.032	598.6
HDGV	0	0.773	26.93	0.682	0.017	0.04	0.025	904
HDDV	0	0.583	1.428	1.919	0.012	0.078	0.053	1245.9
MC	1.9	2.75	27.81	0.87	0.003	0.037	0.021	177.4

Notes: (1) Emission factors from AFCEC 2013, Table 5-13, for 2017 used to provide a conservative estimate of emissions for 2018

Table D3.4-20. Annual Average On-Base Vehicle Emissions, Pittsburgh

Scenario/Vehicle Class	Emissions, lbs/year							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	127.90	2280.73	97.34	1.53	5.46	2.40	80338.48
LDDT	0.03	0.02	0.14	0.03	0.00	0.01	0.01	54.75
LDGT	60.32	291.35	4326.38	247.87	3.51	8.76	3.86	180943.52
LDDT	0.2	0.46	0.82	0.53	0.01	0.07	0.05	696.55
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	30.37	307.12	9.61	0.03	0.41	0.23	1959.09
Total Existing, tons/year		0.23	3.46	0.18	0.00	0.01	0.00	132.00
Proposed Action (Year 2018) (1)								
LDGV	37.55	99.55	2131.58	70.98	1.56	5.58	2.46	82138.43
LDDT	0.03	0.02	0.12	0.02	0.00	0.01	0.00	56.01
LDGT	60.32	239.51	3861.59	190.03	3.59	8.96	3.94	185227.03
LDDT	0.2	0.36	0.71	0.38	0.01	0.06	0.04	711.63
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	31.06	314.08	9.83	0.03	0.42	0.24	2003.53
Total Proposed Action, tons/year		0.19	3.15	0.14	0.00	0.01	0.00	135.07

Table D3.4-21. Annual Average Off-Base Vehicle Emissions, Pittsburgh

Scenario/Vehicle Class	Emissions, lbs/year							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	2297.00	40961.93	1748.23	27.44	98.00	43.12	1442879.03
LDDT	0.03	0.41	2.53	0.63	0.01	0.17	0.12	983.34
LDGT	60.32	5232.59	77701.72	4451.79	62.97	157.42	69.26	3249745.54
LDDT	0.2	8.20	14.78	9.60	0.13	1.25	0.92	12509.96
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	545.43	5515.80	172.55	0.60	7.34	4.17	35185.31
Total Existing, tons/year		4.04	62.10	3.19	0.05	0.13	0.06	2370.65
Proposed Action (Year 2018) (1)								
LDGV	37.55	1748.23	37434.11	1246.50	27.44	98.00	43.12	1442487.05
LDDT	0.03	0.27	2.17	0.28	0.01	0.12	0.07	983.66
LDGT	60.32	4206.22	67815.85	3337.27	62.97	157.42	69.26	3252893.90
LDDT	0.2	6.37	12.53	6.62	0.13	0.98	0.67	12497.43
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	545.43	5515.80	172.55	0.60	7.34	4.17	35185.31
Total Proposed Action, tons/year		3.25	55.39	2.38	0.05	0.13	0.06	2372.02



Table D3.4-22. Annual Air Operations for Aircraft at Pittsburgh - Proposed Action

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-46A	1186	3427	9226

Table D3.4-23. KC-46A Aircraft Closed Pattern Operations at Pittsburgh - KC-46A Proposed Scenarios

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)						
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	68%	73%	83%	85%
KC-46A VFR Profile	1	3427	1.52770185	1.04541426	2.57545944	0.66856113	0.06861792	0.3602441	0.39626852
KC-46A IFR Profile	0	0	5.24755579	1.580018	4.11836013	1.16386557	0.06861792	0.39455307	0.33222512
<b>Total Ops</b>		<b>3427</b>							

Table D3.4-24. KC-46A Aircraft Closed Pattern Operations - Fuel Use and Emission Factors

Factor			Engine Setting/Time in Mode per Operation (Minutes)						
			55%	58%	60%	68%	73%	83%	85%
Fuel Use, lbs/hr			22572	23688.8	24805.6	28379.36	30389.6	34928	36116
Emission Factors, lbs/1000 lbs									
VOC			0.0920	0.0909	0.0897	0.0860	0.0840	0.0819	0.0834
CO			1.2150	1.1435	1.0720	0.8432	0.7145	0.5138	0.5275
NOx			19.0750	19.7655	20.4560	22.6656	23.9085	27.0275	28.0750
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0600	0.0610	0.0620	0.0652	0.0670	0.0713	0.0725
PM2.5			0.0500	0.0510	0.0520	0.0552	0.0570	0.0613	0.0625
CO2			3216	3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.4-25. KC-46A Aircraft Closed Pattern Operations - Emissions Per Operation

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A CA VFR Right Turns South Side			0.2531	2.8367	61.2646	3.0225	0.1809	0.1523	9170.2396	0.2538	0.2851
KC-46A CC IFR Right Turns Southwest Side			0.4768	5.6496	109.9461	5.6344	0.3311	0.2780	17094.6253	0.4731	0.5315
<b>Emissions, closed pattern ops, tons/year</b>			<b>0.4336</b>	<b>4.8607</b>	<b>104.9769</b>	<b>5.1791</b>	<b>0.3099</b>	<b>0.2610</b>	<b>15713.2056</b>	<b>0.4348</b>	<b>0.4886</b>

Table D3.4-26. Annual Air Emissions for KC-46A Aircraft Operations at Pittsburgh - Proposed Action

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A LTOs	19.74	68.55	45.00	3.48	0.28	0.25	10571.39	0.29	0.33
KC-46A T&G	0.43	4.86	104.98	5.18	0.31	0.26	15713.21	0.43	0.49
APU	0.05	0.41	8.45	0.70	0.06	0.05	1726.08	0.00	0.00
Total Proposed Action	20.22	73.83	158.42	9.37	0.66	0.56	28010.67	0.73	0.82

Table D3.4-27. Annual HAP Emissions for KC-135 Aircraft Operations at Pittsburgh - Proposed Action

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-46 LTOs	2.82	0.98	0.56	0.12	0.39	0.15	0.04	0.06	0.07	0.01	0.00	0.00	0.17	0.01
KC-46 Closed Pattern Ops	0.06	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.20	0.01
Total Proposed Action	2.88	1.00	0.57	0.13	0.39	0.15	0.04	0.07	0.07	0.02	0.01	0.01	0.37	0.03

Table D3.4-28. JP-8 AGE Equipment Emissions, Pittsburgh, Proposed Action

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-46A AGE																	
Sorties:	1186																
	Hours/Sortie																
Generator AM32A-86	10	11860.00	6.47	99088.39	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.60E+02	1.19E+01	7.69E+00	2.38E+00	2.33E+00	1.20E+00
Start Cart AM32A-60A	1	1186.00	10.16	12051.29	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	4.76E+00	1.43E+01	7.06E-01	5.52E-01	5.36E-01	1.88E-01
Start Cart AM32A-95	0.1	118.60	8.75	1037.75	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	3.84E-01	1.53E+00	1.83E-01	2.88E-02	2.80E-02	1.62E-02
Heater/AC Ace 802-993 AC	10	11860.00	6.80	182108.39	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	7.68E+01	3.92E+00	5.33E+00	5.18E+00	5.02E+00	1.26E+00
MA-3C Air Conditioner	2	2372.00	7.12	16068.39	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	2.18E+01	1.66E+00	2.77E-01	5.70E-01	5.49E-01	2.61E-01
H1	5	5930.00	0.39	2175.93	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.07E+00	2.37E+00	1.31E+00	1.43E+00	1.43E+00	3.92E-02
1H1	4	4744.00	0.39	1740.74	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.65E+00	1.89E+00	1.05E+00	1.14E+00	1.14E+00	3.14E-02
Light Cart NF-2	2	2372.00	1.02	2410.26	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	5.75E-01	4.18E-01	5.23E-02	5.23E-02	5.23E-02	3.76E-02
Air Compressor MC-1A	0.33	391.38	1.09	406.53	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	3.62E-01	2.30E-01	2.30E-01	6.13E-02	5.87E-02	6.90E-03
Total JP-8 AGE, Tons/year				hp-hrs	5616981.392							1.34E-01	1.91E-02	8.41E-03	5.69E-03	5.57E-03	1.52E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.4-29. AGE HAP Emissions, Pittsburgh, Proposed Action

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	3.03E+01	7.00E-02	
Acrolein		6.48E-04	3.64E+00		
Benzene	7.65E-03	6.50E-03	3.65E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.54E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	4.66E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	3.34E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	6.74E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.63E+01		
Xylenes		2.00E-03	1.12E+01		
Total			1.38E-02		

Table D3.4-30. JP-8 AGE Equipment GHG Emissions, Pittsburgh, Proposed Action

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-46 AGE											
Sorties:	1186										
	Hours/Sortie										
Generator AM32A-86	10	11860.00	6.47	99088.39	148	2.11E+01	5.91E-04	6.80E-04	2.09E+06	5.86E+01	6.74E+01
Start Cart AM32A-60A	1	1186.00	10.16	12051.29	180	2.11E+01	5.91E-04	6.80E-04	2.54E+05	7.12E+00	8.19E+00
Start Cart AM32A-95	0.1	118.60	8.75	1037.75	155	2.11E+01	5.91E-04	6.80E-04	2.19E+04	6.13E-01	7.06E-01
Heater/AC Ace 802-993 AC	10	11860.00	6.80	182108.39	272	2.11E+01	5.91E-04	6.80E-04	3.84E+06	1.08E+02	1.24E+02
MA-3C Air Conditioner	2	2372.00	7.12	16068.39	120	2.11E+01	5.91E-04	6.80E-04	3.39E+05	9.50E+00	1.09E+01
H1	5	5930.00	0.39	2175.93	6.5	2.11E+01	5.91E-04	6.80E-04	4.59E+04	1.29E+00	1.48E+00
1H1	4	4744.00	0.39	1740.74	6.5	2.11E+01	5.91E-04	6.80E-04	3.67E+04	1.03E+00	1.18E+00
Light Cart NF-2	2	2372.00	1.02	2410.26	18	2.11E+01	5.91E-04	6.80E-04	5.09E+04	1.42E+00	1.64E+00
Air Compressor MC-1A	0.33	391.38	1.09	406.53	18.4	2.11E+01	5.91E-04	6.80E-04	8.58E+03	2.40E-01	2.76E-01
Total JP-8 AGE, Metric Tons/year									3.03E+03	8.50E-02	9.78E-02

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.4-31. Aircraft Engine Emissions - Engine Tests, Pittsburgh, Proposed Action

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-46A																	
Defueling	23	Idle	0.50	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	238.87	814.99	72.30	20.27	2.10	1.91
Maintenance Run	92	Idle	0.33	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	1,274.00	4,346.63	385.60	108.13	11.22	10.20
TRT Run 1 Engine	11	Idle	0.17	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	38.08	129.93	11.53	3.23	0.34	0.30
	11	80% RPM	0.08	1	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	1.24	7.73	401.75	16.39	1.08	0.93
TRT Run 2 Engine	8	Idle	0.17	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	55.39	188.98	16.77	4.70	0.49	0.44
	8	80% RPM	0.08	2	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	1.81	11.25	584.36	23.84	1.57	1.35
												0.80	2.75	0.74	0.09	0.01	0.01

Table D3.4-32. HAP Emissions, Engine Tests, Pittsburgh, Proposed Action

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-46A																				
Defueling	23	Idle	0.50	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
Maintenance Run	92	Idle	0.33	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
TRT Run 2 Engine	11	Idle	0.17	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
	11	80% RPM	0.08	1	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
TRT Run 4 Engine	8	Idle	0.17	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
	8	80% RPM	0.08	2	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
						Emissions, lbs/yr														Total HAPs, TPY
						Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate	
						11.84	6.79	1.50	4.66	1.78	0.48	0.78	0.86	0.06	0.02	0.02	1.29	0.09	0.09	
						63.13	36.20	8.00	24.85	9.49	2.58	4.17	4.57	0.34	0.09	0.10	6.89	0.49	0.49	
						1.89	1.08	0.24	0.74	0.28	0.08	0.12	0.14	0.01	0.00	0.00	0.21	0.01	0.01	
						0.18	0.06	0.04	0.01	0.02	0.01	0.00	0.00	0.00	0.03	0.01	0.01	0.78	0.04	
						2.74	1.57	0.35	1.08	0.41	0.11	0.18	0.20	0.01	0.00	0.00	0.30	0.02	0.02	
						0.26	0.09	0.05	0.01	0.04	0.01	0.00	0.01	0.01	0.04	0.02	0.01	1.14	0.06	
						0.04001785	0.02289548	0.00508548	0.015675625	0.00601226	0.00163517	0.00263209	0.00288785	0.00021835	9.21172E-05	7.73212E-05	0.004350612	0.00127221	0.00036011	
																			0.10321253	

Table D3.4-33. GHG Emissions, Engine Tests, Pittsburgh, Proposed Action

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-46A											
Defueling	23	Idle	0.50	1	1,663	3,216.0	0.1	0.1	61,511.79	1.70	1.91
Maintenance Run	92	Idle	0.33	2	1,663	3,216.0	0.1	0.1	328,062.87	9.08	10.20
TRT Run 2 Engine	11	Idle	0.17	1	1,663	3,216.0	0.1	0.1	9,806.23	0.27	0.30
	11	80% RPM	0.08	1	16869.6	3,216.0	0.1	0.1	49,731.58	1.38	1.55
TRT Run 4 Engine	8	Idle	0.17	2	1,663	3,216.0	0.1	0.1	14,263.60	0.39	0.44
	8	80% RPM	0.08	2	16869.6	3,216.0	0.1	0.1	72,336.84	2.00	2.25
<b>Total, tpy</b>									243	0.01	0.01

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.4-34. Pittsburgh Comparison of Emissions

Annual Emissions, tons/year						
Baseline	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	3.42	50.69	67.79	6.14	0.33	0.33
AGE	0.01	0.01	0.10	0.00	0.00	0.00
Engine Tests	0.11	1.67	0.46	0.07	0.01	0.01
POVs	4.27	65.56	3.37	0.05	0.14	0.06
<b>Total</b>	<b>7.81</b>	<b>117.93</b>	<b>71.72</b>	<b>6.26</b>	<b>0.48</b>	<b>0.40</b>
Proposed Action	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	20.22	73.83	158.42	9.37	0.66	0.56
AGE	0.01	0.02	0.13	0.00	0.01	0.01
Engine Tests	0.80	2.75	0.74	0.09	0.01	0.01
POVs	3.44	58.54	2.52	0.05	0.14	0.06
<b>Total</b>	<b>24.48</b>	<b>135.14</b>	<b>161.81</b>	<b>9.51</b>	<b>0.81</b>	<b>0.64</b>
<b>Net Increase</b>	<b>16.67</b>	<b>17.21</b>	<b>90.09</b>	<b>3.24</b>	<b>0.33</b>	<b>0.24</b>

Table D3.4-35. Pittsburgh Comparison of HAP Emissions

Annual HAP Emissions, tons/year														
Baseline	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	0.18	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.26	0.02
AGE	0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.20</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.27</b>	<b>0.02</b>
Proposed Action	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	2.88	1.00	0.57	0.13	0.39	0.15	0.04	0.07	0.07	0.02	0.01	0.01	0.37	0.03
AGE	0.02	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.04	0.02	0.01	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>2.95</b>	<b>1.04</b>	<b>0.58</b>	<b>0.14</b>	<b>0.42</b>	<b>0.16</b>	<b>0.04</b>	<b>0.07</b>	<b>0.07</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.38</b>	<b>0.03</b>
<b>Net Increase</b>	<b>2.74</b>	<b>1.03</b>	<b>0.58</b>	<b>0.14</b>	<b>0.39</b>	<b>0.12</b>	<b>0.04</b>	<b>0.06</b>	<b>0.07</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.11</b>	<b>0.01</b>

Table D3.4-36. Pittsburgh Comparison of GHG Emissions

Annual GHG Emissions, metric tons/year				
Baseline	CO2	CH4	N2O	CO2e
Aircraft Ops	16909	0.47	0.53	17082
AGE	2370	0.07	0.08	2395
Engine Tests	196	0.01	0.01	198
POVs	2270	0.00	0.00	2270
<b>Total</b>	<b>21746</b>	<b>0.54</b>	<b>0.61</b>	<b>21946</b>
Proposed Action	CO2	CH4	N2O	
Aircraft Ops	25411	0.66	0.74	25655
AGE	3035	0.09	0.10	3067
Engine Tests	243	0.01	0.01	245
POVs	2274	0.00	0.00	2274
<b>Total</b>	<b>30963</b>	<b>0.75</b>	<b>0.85</b>	<b>31242</b>
<b>Net Increase</b>	<b>9218</b>	<b>0.21</b>	<b>0.24</b>	<b>9296</b>



**Rickenbacker ANG**





Table D3.5-1. Engine Emission Factors by Throttle Setting - KC-135 and KC-46A Aircraft

Engine Type/Throttle Setting	Fuel Flow (Pounds/Hour)	Emission Factors, lbs/1000 lbs fuel								
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
F-108-CF-100 (2)										
Idle	1013.76	2.1045	30.7	4	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Approach	2463.12	0.092	4.2	8.2	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Intermediate	6486.48	0.0575	0.09	16	1.06	0.05	0.05	3216	8.90E-02	1.00E-01
Military	7801.2	0.046	0.09	18.5	1.06	0.07	0.07	3216	8.90E-02	1.00E-01
P&W 4062 (3)										
Idle	1663.2	12.489	42.61	3.78	1.06	0.11	0.1	3216	8.90E-02	1.00E-01
Approach	5702.4	0.1035	1.93	12.17	1.06	0.05	0.04	3216	8.90E-02	1.00E-01
Climbout	16869.6	0.0805	0.5	25.98	1.06	0.07	0.06	3216	8.90E-02	1.00E-01
Take-Off	21621.6	0.092	0.61	34.36	1.06	0.08	0.07	3216	8.90E-02	1.00E-01
		Emissions, Pounds/Hour								
APU Use - P&W 4062		0.04	0.33	6.72	0.56	0.05	0.04	1373		

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013).

(3) ICAO Engine Exhaust Emissions Data Bank - Subsonic Engines - (ICAO 2013).

Table D3.5-2. HAP Emission Factors - KC-135 and KC-46A Aircraft

Engine Type	Emission Factor (lb/1000 lb fuel) (1)													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
<i>F108-CF-100</i>														
Idle	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.50E-02	0.00E+00	0.00E+00	0.00E+00	3.22E-03	6.23E-03	5.53E-04	1.61E-03	0.00E+00	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	5.58E-03	0.00E+00	0.00E+00	0.00E+00	4.25E-04	1.42E-03	0.00E+00	5.42E-04	0.00E+00	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03
<i>P&amp;W 4062 (3)</i>														
Idle	1.78E+00	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.48E-02	5.13E-03	2.94E-03	6.50E-04	2.02E-03	7.71E-04	2.09E-04	3.39E-04	3.71E-04	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	1.31E-02	4.56E-03	2.61E-03	5.78E-04	1.79E-03	6.85E-04	1.86E-04	3.01E-04	3.30E-04	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013), Table 2-9.

Table D3.5-3. Land and Take-off/Touch and Go Times in Mode and Fuel Usages - KC-135 and KC-46A Aircraft

Aircraft/Mode (Engine Throttle Setting)	LTO		Touch & Go	
	Time in Mode (TIM)		TIM	Fuel Usage
	Minutes	Hours	Hours	Pounds
<i>KC-135 (2)</i>				
Taxi Out (Idle)	32.8	0.55		2217
Take-off (Military)	0.7	0.01	0.01	364
Climbout (Intermediate)	2.5	0.04	0.04	1081
Approach	5.2	0.09	0.09	854
Taxi In (Idle)	14.9	0.25		1007
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>0.14</b>	<b>2299</b>
<i>KC-46A (2)</i>				
Taxi Out (Idle)	32.8	0.55		1818
Take-off (Military)	0.7	0.01	0.01	505
Climbout (Intermediate)	2.5	0.04	0.04	1406
Approach	5.2	0.09	0.09	988
Taxi In (Idle)	14.9	0.25		826
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>0.14</b>	<b>2899</b>
<i>APU Use, KC-46A (3)</i>		<b>Hours</b>		
Pre-Flight - OBIGGS + Electric + Max ECS		1.50		
Pre-Flight - Main Engine Start + Electric		0.03		
Post-Flight - Electric + Min ECS		0.58		
<b>Total Hours per LTO</b>		<b>2.12</b>		

Notes: (1) Fuel usage per aircraft.

(2) TIM Data from Table 2-4, Transport Aircraft (AFCEC 2013).

(3) APU use from FTU/MOB1 Draft EIS.

Table D3.5-4. Land and Take-off/Touch and Go Total Fuel Usages and Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)								
LTOs	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Taxi Out (Idle)	32.8	0.55	2217	4.67	68.05	8.87	2.35	0.13	0.13	7129.08	0.20	0.22
Take-off (Military)	0.7	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.5	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.2	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Taxi In (Idle)	14.9	0.25	1007	2.12	30.91	4.03	1.07	0.06	0.06	3238.52	0.09	0.10
Totals	56.1	0.935	5523	6.94	102.69	43.93	5.85	0.32	0.32	17761.24	0.49	0.55
KC-46A (2)												
Taxi Out (Idle)	32.8	0.55	1818	22.71	77.48	6.87	1.93	0.20	0.18	5848.08	0.16	0.18
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Taxi In (Idle)	14.9	0.25	826	10.32	35.20	3.12	0.88	0.09	0.08	2656.60	0.07	0.08
Totals	56.1	0.935	5543	33.29	115.60	75.88	5.88	0.48	0.42	17826.96	0.49	0.55

Aircraft/Mode	Touch and Go			Emissions (Pounds)								
Touch and Go	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours	Pounds									
KC-135 (2)												
Take-off (Military)	0.70	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.50	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.20	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Totals	8.40	0.14	2299	0.16	3.72	31.03	2.44	0.13	0.13	7393.64	0.20	0.23
KC-46A (2)												
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Totals	8.40	0.14	2899	0.26	2.92	65.89	3.07	0.19	0.16	9322.28	0.26	0.29

Table D3.5-5. Land and Take-off/Touch and Go Total Fuel Usages and HAP Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)													
LTOs	Time in Mode (TIM)		Fuel Usage	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Taxi Out (Idle)	32.8	0.55	2217	0.21	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.01
Take-off (Military)	0.7	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.2	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	1007	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Totals	56.1	0.94	5523	0.33	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.31	0.02
KC-46A (2)																	
Taxi Out (Idle)	32.8	0.55	1818	3.24	1.13	0.65	0.14	0.44	0.17	0.05	0.07	0.08	0.01	0.00	0.00	0.12	0.01
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	826	1.47	0.51	0.29	0.06	0.20	0.08	0.02	0.03	0.04	0.00	0.00	0.00	0.06	0.00
Totals	56.1	0.94	5543	4.75	1.65	0.95	0.21	0.65	0.25	0.07	0.11	0.12	0.01	0.00	0.00	0.29	0.02

Aircraft/Mode	Touch and Go			Emissions (Pounds)													
Touch and Go	Time in Mode (TIM)		Fuel Usage	Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Take-off (Military)	0.70	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.50	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Approach	5.20	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals	8.40	0.14	2299	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01
KC-46A (2)																	
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Totals	8.40	0.14	2899	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.01

Table D3.5-6. Annual Air Operations for Aircraft at Rickenbacker - Baseline

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-135	1289	1933.5	6445

Table D3.5-7. KC-135 Aircraft Closed Pattern Operations at Rickenbacker, Baseline

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)					
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	70%	73%	85%
KC-136 VFR Profile	1	1934	1.08073231	1.05954148	3.23876605	0.6250811	0.10721551	0.60319134
KC-135 IFR Profile	0	0	5.90400061	2.76893508	3.98841687	0.45137435	0.10721551	0.60319134
Total Ops		1933.5						

Table D3.5-8. KC-135 Aircraft Closed Pattern Operations - Fuel Use and Emission Factors, Baseline

Factor			Engine Setting/Time in Mode per Operation (Minutes)					
			55%	58%	60%	70%	73%	85%
Fuel Use, lbs/hr			19910.88	20916.72	21922.56	25945.92	27589.32	31204.8
Emission Factors, lbs/1000 lbs fuel								
VOC			0.0704	0.0683	0.0661	0.0575	0.0539	0.0460
CO			1.6313	1.3744	1.1175	0.0900	0.0900	0.0900
NOx			13.0750	13.5625	14.0500	16.0000	16.7813	18.5000
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
PM2.5			0.0538	0.0531	0.0525	0.0500	0.0563	0.0700
CO2			3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.5-9. KC-135 Aircraft Closed Pattern Operations - Emissions Per Operation, Baseline

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 CA VFR Right Turns South Side			0.1614	2.4721	37.2809	2.6974	0.1393	0.1393	8183.7166	0.2265	0.2545
KC-135 CC IFR Right Turns Southwest Side			0.3286	6.2014	68.9372	5.2364	0.2676	0.2676	15886.9857	0.4397	0.4940
Emissions, closed pattern ops, tons/year			0.1560	2.3899	36.0413	2.6077	0.1346	0.1346	7911.6080	0.2189	0.2460

Table D3.5-10. Annual Air Emissions for KC-135 Aircraft Operations at Rickenbacker - Baseline

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 LTOs	4.47	66.18	28.31	3.77	0.21	0.21	11447.12	0.32	0.36
KC-135 T&G	0.16	2.39	36.04	2.61	0.13	0.13	7911.61	0.22	0.25
Total Existing	4.63	68.57	64.35	6.38	0.34	0.34	19358.73	0.54	0.60

Table D3.5-11. Annual HAP Emissions for KC-135 Aircraft Operations at Rickenbacker - Baseline

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-135 LTOs	0.21	0.00	0.00	0.01	0.01	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.20	0.01
KC-135 Closed Pattern Ops	0.02	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.09	0.01
Total Existing	0.23	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.29	0.02

Table D3.5-12. JP-8 AGE Equipment Emissions, Rickenbacker, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-135 AGE																	
Sorties:	1289																
	Hours/Sortie																
Generator AM32A-86	10	12890.00	6.47	107693.87	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.73E+02	1.30E+01	8.35E+00	2.59E+00	2.53E+00	1.31E+00
Start Cart AM32A-60A	1	1289.00	10.16	13097.90	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	5.17E+00	1.56E+01	7.67E-01	6.00E-01	5.83E-01	2.04E-01
Start Cart AM32A-95	0.1	128.90	8.75	1127.88	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	4.18E-01	1.67E+00	1.99E-01	3.13E-02	3.04E-02	1.76E-02
Heater/AC Ace 802-993 AC	10	12890.00	6.80	197923.87	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	8.35E+01	4.26E+00	5.80E+00	5.63E+00	5.46E+00	1.36E+00
MA-3C Air Conditioner	2	2578.00	7.12	17463.87	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	2.37E+01	1.80E+00	3.01E-01	6.20E-01	5.97E-01	2.84E-01
H1	5	6445.00	0.39	2364.90	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.25E+00	2.57E+00	1.42E+00	1.55E+00	1.55E+00	4.26E-02
1H1	4	5156.00	0.39	1891.92	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.80E+00	2.06E+00	1.14E+00	1.24E+00	1.24E+00	3.41E-02
Light Cart NF-2	2	2578.00	1.02	2619.58	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	6.25E-01	4.55E-01	5.68E-02	5.68E-02	5.68E-02	4.08E-02
Air Compressor MC-1A	0.33	425.37	1.09	441.84	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	3.93E-01	2.50E-01	2.50E-01	6.66E-02	6.38E-02	7.50E-03
Total JP-8 AGE, Tons/year				hp-hrs	6104796.808							1.46E-01	2.08E-02	9.14E-03	6.19E-03	6.05E-03	1.65E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.5-13. AGE HAP Emissions, Rickenbacker, Baseline

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	3.30E+01	7.00E-02	
Acrolein		6.48E-04	3.96E+00		
Benzene	7.65E-03	6.50E-03	3.97E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.67E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	5.07E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	3.63E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	7.33E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.77E+01		
Xylenes		2.00E-03	1.22E+01		
Total			1.50E-02		

Table D3.5-14. JP-8 AGE Equipment GHG Emissions, Rickenbacker, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-135 AGE											
Sorties:	1289										
	Hours/Sortie										
Generator AM32A-86	10	12890.00	6.47	107693.87	148	2.11E+01	5.91E-04	6.80E-04	2.27E+06	6.36E+01	7.32E+01
Start Cart AM32A-60A	1	1289.00	10.16	13097.90	180	2.11E+01	5.91E-04	6.80E-04	2.76E+05	7.74E+00	8.91E+00
Start Cart AM32A-95	0.1	128.90	8.75	1127.88	155	2.11E+01	5.91E-04	6.80E-04	2.38E+04	6.67E-01	7.67E-01
Heater/AC Ace 802-993 AC	10	12890.00	6.80	197923.87	272	2.11E+01	5.91E-04	6.80E-04	4.18E+06	1.17E+02	1.35E+02
MA-3C Air Conditioner	2	2578.00	7.12	17463.87	120	2.11E+01	5.91E-04	6.80E-04	3.68E+05	1.03E+01	1.19E+01
H1	5	6445.00	0.39	2364.90	6.5	2.11E+01	5.91E-04	6.80E-04	4.99E+04	1.40E+00	1.61E+00
1H1	4	5156.00	0.39	1891.92	6.5	2.11E+01	5.91E-04	6.80E-04	3.99E+04	1.12E+00	1.29E+00
Light Cart NF-2	2	2578.00	1.02	2619.58	18	2.11E+01	5.91E-04	6.80E-04	5.53E+04	1.55E+00	1.78E+00
Air Compressor MC-1A	0.33	425.37	1.09	441.84	18.4	2.11E+01	5.91E-04	6.80E-04	9.32E+03	2.61E-01	3.00E-01
Total JP-8 AGE, Metric Tons/year									3.30E+03	9.24E-02	1.06E-01

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.



Table D3.5-15. Aircraft Engine Emissions - Engine Tests, Rickenbacker, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-135																	
Defueling	16	Idle	0.50	1	1,014	2.1	30.7	4.0	1.1	0.1	0.1	17.07	248.98	32.44	8.60	0.99	0.99
Maintenance Run	64	Idle	0.33	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	182.06	2,655.78	346.03	91.70	10.54	10.54
TRT Run 2 Engine	7	Idle	0.17	2	1,014	2.1	30.7	4.0	1.1	0.1	0.1	4.98	72.62	9.46	2.51	0.29	0.29
	7	80% RPM	0.08	2	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.42	0.82	168.38	9.65	1.00	1.00
TRT Run 4 Engine	6	Idle	0.17	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	8.53	124.49	16.22	4.30	0.49	0.49
	6	80% RPM	0.08	4	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.72	1.40	288.64	16.54	1.71	1.71
												0.11	1.55	0.43	0.07	0.01	0.01

Table D3.5-16. HAP Emissions, Engine Tests, Rickenbacker, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-135																				
Defueling	16	Idle	0.50	1	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
Maintenance Run	64	Idle	0.33	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
TRT Run 2 Engine	7	Idle	0.17	2	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	7	80% RPM	0.08	2	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
TRT Run 4 Engine	6	Idle	0.17	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	
	6	80% RPM	0.08	4	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03	
						Emissions, lbs/yr														Total HAPs, TPY
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
						0.77	0.00	0.00	0.02	0.02	0.07	0.01	0.01	0.01	0.02	0.01	0.01	0.55	0.04	
						8.23	0.00	0.00	0.25	0.16	0.78	0.06	0.14	0.13	0.20	0.08	0.08	5.84	0.42	
						0.22	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.01	
						0.06	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.02	0.02	
						0.39	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.01	0.01	0.00	0.00	0.27	0.02	
						0.11	0.00	0.00	0.00	0.02	0.02	0.00	0.01	0.00	0.02	0.01	0.01	0.03	0.04	
						0.00489095	0	0	0.000146505	0.0001097	0.00046687	3.4555E-05	8.7507E-05	7.4768E-05	0.000131274	5.02865E-05	5.48808E-05	0.00343424	0.00027491	

Table D3.5-17. GHG Emissions, Engine Tests, Rickenbacker, Baseline

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-135											
Defueling	16	Idle	0.50	1	1,014	3,216.0	0.1	0.1	26,082.02	0.72	0.81
Maintenance Run	64	Idle	0.33	4	1,014	3,216.0	0.1	0.1	278,208.18	7.70	8.65
TRT Run 2 Engine	7	Idle	0.17	2	1,014	3,216.0	0.1	0.1	7,607.26	0.21	0.24
	7	80% RPM	0.08	2	7801.2	3,216.0	0.1	0.1	29,270.10	0.81	0.91
TRT Run 4 Engine	6	Idle	0.17	4	1,014	3,216.0	0.1	0.1	13,041.01	0.36	0.41
	6	80% RPM	0.08	4	7801.2	3,216.0	0.1	0.1	50,177.32	1.39	1.56
<b>Total, tpy</b>									<b>183</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.5-18. Annual Worker Population and VMT at Rickenbacker - KC-46A Project Scenarios

Scenario	Total # of Workers	Annual On-Base VMT	Annual Off-Base VMT
Existing	1174	305240	4993726.4
Proposed Action	1358	353080	5776388.8

<sup>1</sup>On-Base mileage based on 1.00 miles from 2009 AEI; assume 260 days/year

<sup>2</sup>Off-Base mileage based on distance to downtown Columbus, 16.36 miles; assume 260 days/year

Table D3.5-19. Annual Average On-Road Vehicle Emission Factors - Rickenbacker

Scenario/Vehicle Class	Emission Factors (Grams/Mile)							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	0.589	10.11	0.445	0.007	0.025	0.011	368.1
LDDT	0.03	0.132	0.808	0.2	0.003	0.053	0.037	314
LDGT	60.32	0.833	11.95	0.701	0.01	0.025	0.011	516.1
LDDT	0.2	0.393	0.708	0.46	0.006	0.06	0.044	599.2
HDGV	0	1.078	28.36	1.206	0.017	0.049	0.032	905.3
HDDV	0	0.684	2.315	3.359	0.012	0.129	0.1	1245.6
MC	1.9	2.85	27.61	0.86	0.003	0.037	0.021	177.4
Proposed Action (Year 2018) (1)								
LDGV	37.55	0.448	9.22	0.318	0.007	0.025	0.011	368
LDDT	0.03	0.087	0.692	0.088	0.003	0.038	0.023	314.1
LDGT	60.32	0.782	10.43	0.527	0.01	0.025	0.011	516.6
LDDT	0.2	0.305	0.6	0.317	0.006	0.047	0.032	598.6
HDGV	0	0.305	26.67	0.68	0.017	0.04	0.025	904
HDDV	0	0.583	1.428	1.919	0.012	0.078	0.053	1245.9
MC	1.9	2.85	27.61	0.86	0.003	0.037	0.021	177.4

Notes: (1) Emission factors from AFCEC 2013, Table 5-13, for 2017 used to provide a conservative estimate of emissions for 2018

Table D3.5-20. Annual Average On-Base Vehicle Emissions, Rickenbacker

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	148.83	2554.70	112.45	1.77	6.32	2.78	93015.16
LDDT	0.03	0.03	0.16	0.04	0.00	0.01	0.01	63.39
LDGT	60.32	338.13	4850.73	284.55	4.06	10.15	4.47	209494.76
LDDT	0.2	0.53	0.95	0.62	0.01	0.08	0.06	806.45
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	36.44	353.02	11.00	0.04	0.47	0.27	2268.22
Total Existing, tons/year		0.26	3.88	0.20	0.00	0.01	0.00	152.82
Proposed Action (Year 2018) (1)								
LDGV	37.55	130.95	2694.95	92.95	2.05	7.31	3.22	107564.11
LDDT	0.03	0.02	0.16	0.02	0.00	0.01	0.01	73.35
LDGT	60.32	367.18	4897.28	247.45	4.70	11.74	5.16	242563.46
LDDT	0.2	0.47	0.93	0.49	0.01	0.07	0.05	931.92
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	42.15	408.35	12.72	0.04	0.55	0.31	2623.72
Total Proposed Action, tons/year		0.27	4.00	0.18	0.00	0.01	0.00	176.88

Table D3.5-21. Annual Average Off-Base Vehicle Emissions, Rickenbacker

Scenario/Vehicle Class	POV Mix (%)	Emissions, lbs/year						
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	2434.93	41794.81	1839.63	28.94	103.35	45.47	1521728.00
LDDT	0.03	0.44	2.67	0.66	0.01	0.18	0.12	1037.08
LDGT	60.32	5531.81	79357.96	4655.22	66.41	166.02	73.05	3427334.28
LDDT	0.2	8.65	15.59	10.13	0.13	1.32	0.97	13193.59
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	596.16	5775.39	179.89	0.63	7.74	4.39	37108.08
Total Existing, tons/year		4.29	63.47	3.34	0.05	0.14	0.06	2500.20
Proposed Action (Year 2018) (1)								
LDGV	37.55	1852.04	38115.55	1314.61	28.94	103.35	45.47	1521314.60
LDDT	0.03	0.29	2.29	0.29	0.01	0.13	0.08	1037.41
LDGT	60.32	5193.13	69263.90	3499.72	66.41	166.02	73.05	3430654.70
LDDT	0.2	6.72	13.21	6.98	0.13	1.03	0.70	13180.38
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	596.16	5775.39	179.89	0.63	7.74	4.39	37108.08
Total Proposed Action, tons/year		3.82	56.59	2.50	0.05	0.14	0.06	2501.65

Table D3.5-22. Annual Air Operations for Aircraft at Rickenbacker - Proposed Action

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-46A	1286	2142.5	6857

Table D3.5-23. KC-46A Aircraft Closed Pattern Operations at Rickenbacker - KC-46A Proposed Scenarios

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)						
	Fraction of Ops	Total Ops per Pattern	55%	58%	60%	68%	73%	83%	85%
KC-46A VFR Profile	1	2143	1.52770185	1.04541426	2.57545944	0.66856113	0.06861792	0.3602441	0.39626852
KC-46A IFR Profile	0	0	5.24755579	1.03333177	6.83322258	1.16386557	0.06861792	0.39455307	0.33222512
Total Ops		2143							

Table D3.5-24. KC-46A Aircraft Closed Pattern Operations - Fuel Use and Emission Factors

Factor			Engine Setting/Time in Mode per Operation (Minutes)						
			55%	58%	60%	68%	73%	83%	85%
Fuel Use, lbs/hr			22572	23688.8	24805.6	28379.36	30389.6	34928	36116
Emission Factors, lbs/1000 lbs									
VOC			0.0920	0.0909	0.0897	0.0860	0.0840	0.0819	0.0834
CO			1.2150	1.1435	1.0720	0.8432	0.7145	0.5138	0.5275
NOx			19.0750	19.7655	20.4560	22.6656	23.9085	27.0275	28.0750
SO2			1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10			0.0600	0.0610	0.0620	0.0652	0.0670	0.0713	0.0725
PM2.5			0.0500	0.0510	0.0520	0.0552	0.0570	0.0613	0.0625
CO2			3216	3216	3216	3216	3216	3216	3216
CH4			0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O			0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table D3.5-25. KC-46A Aircraft Closed Pattern Operations - Emissions Per Operation

Emissions per operation, lbs			VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A CA VFR Right Turns South Side			0.2531	2.8367	61.2646	3.0225	0.1809	0.1523	9170.2396	0.2538	0.2851
KC-46A CC IFR Right Turns Southwest Side			0.5579	6.6060	128.6396	6.5954	0.3876	0.3254	20010.1143	0.5538	0.6222
Emissions, closed pattern ops, tons/year			0.2711	3.0388	65.6297	3.2379	0.1937	0.1632	9823.6192	0.2719	0.3055

Table D3.5-26. Annual Air Emissions for KC-46A Aircraft Operations at Rickenbacker - Proposed Action

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A LTOs	21.40	74.33	48.79	3.78	0.31	0.27	11462.73	0.32	0.36
KC-46A T&G	0.27	3.04	65.63	3.24	0.19	0.16	9823.62	0.27	0.31
APU	0.05	0.45	9.16	0.76	0.07	0.05	1871.62	0.00	0.00
Total Proposed Action	21.73	77.82	123.58	7.78	0.57	0.49	23157.97	0.59	0.66

Table D3.5-27. Annual HAP Emissions for KC-46A Aircraft Operations at Rickenbacker - Proposed Action

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-46A LTOs	3.06	1.06	0.61	0.13	0.42	0.16	0.04	0.07	0.08	0.01	0.00	0.00	0.19	0.01
KC-46A Closed Pattern Ops	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.12	0.01
Total Proposed Action	3.10	1.07	0.62	0.14	0.42	0.16	0.04	0.07	0.08	0.01	0.01	0.00	0.31	0.02

Table D3.5-28. JP-8 AGE Equipment Emissions, Rickenbacker, Proposed Action

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-46A AGE																	
Sorties:	1286																
	Hours/Sortie																
Generator AM32A-86	10	12860.00	6.47	107443.23	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.73E+02	1.30E+01	8.34E+00	2.58E+00	2.52E+00	1.30E+00
Start Cart AM32A-60A	1	1286.00	10.16	13067.42	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	5.16E+00	1.55E+01	7.65E-01	5.98E-01	5.81E-01	2.04E-01
Start Cart AM32A-95	0.1	128.60	8.75	1125.25	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	4.17E-01	1.66E+00	1.98E-01	3.12E-02	3.03E-02	1.75E-02
Heater/AC Ace 802-993 AC	10	12860.00	6.80	197463.23	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	8.33E+01	4.25E+00	5.78E+00	5.61E+00	5.44E+00	1.36E+00
MA-3C Air Conditioner	2	2572.00	7.12	17423.23	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	2.36E+01	1.80E+00	3.01E-01	6.18E-01	5.95E-01	2.84E-01
H1	5	6430.00	0.39	2359.40	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.24E+00	2.57E+00	1.42E+00	1.55E+00	1.55E+00	4.25E-02
1H1	4	5144.00	0.39	1887.52	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.79E+00	2.05E+00	1.13E+00	1.24E+00	1.24E+00	3.40E-02
Light Cart NF-2	2	2572.00	1.02	2613.48	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	6.24E-01	4.54E-01	5.67E-02	5.67E-02	5.67E-02	4.07E-02
Air Compressor MC-1A	0.33	424.38	1.09	440.81	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	3.92E-01	2.50E-01	2.50E-01	6.64E-02	6.36E-02	7.48E-03
Total JP-8 AGE, Tons/year				hp-hrs	6090588.592							1.45E-01	2.08E-02	9.12E-03	6.17E-03	6.04E-03	1.65E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.5-29. AGE HAP Emissions, Rickenbacker, Proposed Action

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	3.29E+01	7.00E-02	
Acrolein		6.48E-04	3.95E+00		
Benzene	7.65E-03	6.50E-03	3.96E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.67E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	5.06E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	3.62E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	7.31E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.77E+01		
Xylenes		2.00E-03	1.22E+01		
Total			1.49E-02		

Table D3.5-30. JP-8 AGE Equipment GHG Emissions, Rickenbacker, Proposed Action

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-46A AGE											
Sorties:	1286										
	Hours/Sortie										
Generator AM32A-86	10	12860.00	6.47	107443.23	148	2.11E+01	5.91E-04	6.80E-04	2.27E+06	6.35E+01	7.31E+01
Start Cart AM32A-60A	1	1286.00	10.16	13067.42	180	2.11E+01	5.91E-04	6.80E-04	2.76E+05	7.72E+00	8.89E+00
Start Cart AM32A-95	0.1	128.60	8.75	1125.25	155	2.11E+01	5.91E-04	6.80E-04	2.37E+04	6.65E-01	7.65E-01
Heater/AC Ace 802-993 AC	10	12860.00	6.80	197463.23	272	2.11E+01	5.91E-04	6.80E-04	4.17E+06	1.17E+02	1.34E+02
MA-3C Air Conditioner	2	2572.00	7.12	17423.23	120	2.11E+01	5.91E-04	6.80E-04	3.68E+05	1.03E+01	1.18E+01
H1	5	6430.00	0.39	2359.40	6.5	2.11E+01	5.91E-04	6.80E-04	4.98E+04	1.39E+00	1.60E+00
1H1	4	5144.00	0.39	1887.52	6.5	2.11E+01	5.91E-04	6.80E-04	3.98E+04	1.12E+00	1.28E+00
Light Cart NF-2	2	2572.00	1.02	2613.48	18	2.11E+01	5.91E-04	6.80E-04	5.51E+04	1.54E+00	1.78E+00
Air Compressor MC-1A	0.33	424.38	1.09	440.81	18.4	2.11E+01	5.91E-04	6.80E-04	9.30E+03	2.61E-01	3.00E-01
Total JP-8 AGE, Metric Tons/year									3.29E+03	9.22E-02	1.06E-01

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table D3.5-31. Aircraft Engine Emissions - Engine Tests, Rickenbacker, Proposed Action

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-46A																	
Defueling	17	Idle	0.50	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	176.56	602.39	53.44	14.99	1.56	1.41
Maintenance Run	68	Idle	0.33	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	941.65	3,212.73	285.01	79.92	8.29	7.54
TRT Run 1 Engine	8	Idle	0.17	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	27.70	94.49	8.38	2.35	0.24	0.22
	8	80% RPM	0.08	1	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	0.91	5.62	292.18	11.92	0.79	0.67
TRT Run 2 Engine	6	Idle	0.17	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	41.54	141.74	12.57	3.53	0.37	0.33
	6	80% RPM	0.08	2	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	1.36	8.43	438.27	17.88	1.18	1.01
												0.59	2.03	0.54	0.07	0.01	0.01

Table D3.5-32. HAP Emissions, Engine Tests, Rickenbacker, Proposed Action

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)														
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	
KC-46A																				
Defueling	17	Idle	0.50	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
Maintenance Run	68	Idle	0.33	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
TRT Run 2 Engine	8	Idle	0.17	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
TRT Run 4 Engine	8	80% RPM	0.08	1	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
	6	Idle	0.17	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03	
	6	80% RPM	0.08	2	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03	
Emissions, lbs/yr																				
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate	Total HAPs, TPY
						8.75	5.02	1.11	3.44	1.32	0.36	0.58	0.63	0.05	0.01	0.01	0.95	0.07	0.07	
						46.66	26.75	5.91	18.37	7.01	1.90	3.08	3.38	0.25	0.07	0.07	5.09	0.37	0.37	
						1.37	0.79	0.17	0.54	0.21	0.06	0.09	0.10	0.01	0.00	0.00	0.15	0.01	0.01	
						0.13	0.04	0.03	0.01	0.02	0.01	0.00	0.00	0.00	0.02	0.01	0.01	0.57	0.03	
						2.06	1.18	0.26	0.81	0.31	0.08	0.14	0.15	0.01	0.00	0.00	0.22	0.02	0.02	
						0.19	0.07	0.04	0.01	0.03	0.01	0.00	0.00	0.00	0.03	0.01	0.01	0.85	0.04	
						0.02958249	0.016925	0.00375938	0.011587815	0.004444445	0.00120878	0.00194571	0.00213478	0.000016142	6.81459E-05	5.71806E-05	0.003216092	0.0009419	0.00026628	0.07629942

Table D3.5-33. GHG Emissions, Engine Tests, Rickenbacker, Proposed Action

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-46A											
Defueling	17	Idle	0.50	1	1,663	3,216.0	0.1	0.1	45,465.24	1.26	1.41
Maintenance Run	68	Idle	0.33	2	1,663	3,216.0	0.1	0.1	242,481.25	6.71	7.54
TRT Run 2 Engine	8	Idle	0.17	1	1,663	3,216.0	0.1	0.1	7,131.80	0.20	0.22
	8	80% RPM	0.08	1	16869.6	3,216.0	0.1	0.1	36,168.42	1.00	1.12
TRT Run 4 Engine	6	Idle	0.17	2	1,663	3,216.0	0.1	0.1	10,697.70	0.30	0.33
	6	80% RPM	0.08	2	16869.6	3,216.0	0.1	0.1	54,252.63	1.50	1.69
<b>Total, tpy</b>									180	0.00	0.01

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table D3.5-34. Rickenbacker Comparison of Emissions

Annual Emissions, tons/year						
Baseline	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	4.63	68.57	64.35	6.38	0.34	0.34
AGE	0.01	0.02	0.15	0.00	0.01	0.01
Engine Tests	0.11	1.55	0.43	0.07	0.01	0.01
POVs	4.55	67.35	3.55	0.05	0.15	0.07
<b>Total</b>	<b>9.29</b>	<b>137.50</b>	<b>68.48</b>	<b>6.50</b>	<b>0.51</b>	<b>0.42</b>
Proposed Action	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	21.73	77.82	123.58	7.78	0.57	0.49
AGE	0.01	0.02	0.15	0.00	0.01	0.01
Engine Tests	0.59	2.03	0.54	0.07	0.01	0.01
POVs	4.09	60.59	2.68	0.05	0.15	0.07
<b>Total</b>	<b>26.43</b>	<b>140.46</b>	<b>126.95</b>	<b>7.90</b>	<b>0.73</b>	<b>0.57</b>
<b>Net Increase</b>	<b>17.13</b>	<b>2.96</b>	<b>58.47</b>	<b>1.40</b>	<b>0.23</b>	<b>0.15</b>

Table D3.5-35. Rickenbacker Comparison of HAP Emissions

Annual HAP Emissions, tons/year														
Baseline	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	0.23	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.29	0.02
AGE	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.26</b>	<b>0.02</b>	<b>0.00</b>	<b>0.01</b>	<b>0.03</b>	<b>0.04</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.29</b>	<b>0.02</b>
Proposed Action	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	3.10	1.07	0.62	0.14	0.42	0.16	0.04	0.07	0.08	0.01	0.01	0.00	0.31	0.02
AGE	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.03	0.02	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>3.15</b>	<b>1.11</b>	<b>0.62</b>	<b>0.15</b>	<b>0.45</b>	<b>0.17</b>	<b>0.05</b>	<b>0.07</b>	<b>0.08</b>	<b>0.01</b>	<b>0.01</b>	<b>0.01</b>	<b>0.31</b>	<b>0.02</b>
<b>Net Increase</b>	<b>2.89</b>	<b>1.09</b>	<b>0.62</b>	<b>0.14</b>	<b>0.42</b>	<b>0.13</b>	<b>0.04</b>	<b>0.06</b>	<b>0.07</b>	<b>0.00</b>	<b>0.00</b>	<b>0.00</b>	<b>0.02</b>	<b>0.00</b>

Table D3.5-36. Rickenbacker Comparison of GHG Emissions

Annual GHG Emissions, metric tons/year				
Baseline	CO2	CH4	N2O	CO2e
Aircraft Ops	17562	0.49	0.55	17742
AGE	3298	0.09	0.11	3333
Engine Tests	183	0.01	0.01	185
POVs	2407	0.00	0.00	2407
<b>Total</b>	<b>23451</b>	<b>0.58</b>	<b>0.66</b>	<b>23667</b>
Proposed Action	CO2	CH4	N2O	
Aircraft Ops	21009	0.53	0.60	21206
AGE	3291	0.09	0.11	3326
Engine Tests	180	0.00	0.01	182
POVs	2430	0.00	0.00	2430
<b>Total</b>	<b>26909</b>	<b>0.63</b>	<b>0.71</b>	<b>27143</b>
<b>Net Increase</b>	<b>3458</b>	<b>0.05</b>	<b>0.05</b>	<b>3476</b>





**Appendix E**

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***Special Status Species Lists***



## APPENDIX E SPECIAL STATUS SPECIES LISTS

### Special Status Species Observed or Potentially Occurring in the Vicinity of Forbes ANG

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Occurrence on Forbes Field Airport</i>
<b>Birds</b>			
Eskimo Curlew	<i>Numenius borealis</i>	FE, SE	U
Least Tern	<i>Sternula antillarum</i>	FE, SE	U
Piping Plover	<i>Charadrius melodus</i>	FT, ST	U
Snowy Plover	<i>Charadrius alexandrinus</i>	ST	U
Whooping Crane	<i>Grus americana</i>	FE, SE	U
<b>Mammals</b>			
Eastern spotted skunk	<i>Spilogale putorius</i>	ST	U
<b>Amphibians and Reptiles</b>			
Smooth earth snake	<i>Virginia valeriae</i>	ST	U
<b>Fish</b>			
Silver chub	<i>Macrhybopsis storeriana</i>	SE	U
Sturgeon chub	<i>Macrhybopsis gelida</i>	FC, ST	U
Topeka shiner	<i>Notropis topeka</i>	FE, ST	U
<b>Invertebrates</b>			
American burying beetle	<i>Nicrophorus americanus</i>	FE, SE	U

*Notes:* FT = Federal Threatened, FE = Federal Endangered, FC = Federal Candidate, ST = State Threatened, SE = State Endangered, U = Unlikely

*Sources:* 190<sup>th</sup> Air Refueling Wing 2004; Kansas Department of Wildlife, Parks and Tourism 2005, 2013.

## Special Status Species Observed or Potentially Occurring in the Vicinity of JB MDL

Common Name	Scientific Name	Federal Status/State Status	Occurrence On McGuire Field
<b>Birds</b>			
American Bittern	<i>Botaurus lentiginosus</i>	SE	P
American Kestrel	<i>Falco sparverius</i>	ST	O
Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST/SE	P
Barred Owl	<i>Strix varia</i>	ST	P
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	ST	P
Grasshopper Sparrow	<i>Ammodramus savannarum</i>	ST	O
Henslow's Sparrow	<i>Ammodramus henslowii</i>	SE	P
Horned Lark	<i>Eremophila alpestris</i>	ST	P
Long-eared Owl	<i>Asio otus</i>	ST	P
Northern Goshawk	<i>Accipiter gentilis</i>	SE	P
Northern Harrier	<i>Circus cyaneus</i>	SE	O
Osprey	<i>Pandion haliaetus</i>	ST	P
Pied-billed Grebe	<i>Podilymbus podiceps</i>	SE	O
Red-headed Woodpecker	<i>Malanerpes erythrocephalus</i>	ST	P
Red-shouldered Hawk	<i>Buteo lineatus</i>	ST/SE	P
Savannah Sparrow	<i>Passerculus sandwichensis</i>	ST	O
Sedge Wren	<i>Cistothorus platensis</i>	SE	P
Upland Sandpiper	<i>Bartramia longicauda</i>	SE	O
Vesper Sparrow	<i>Poocetes gramineus</i>	SE	P
<b>Mammals</b>			
Bobcat	<i>Lynx rufus</i>	SE	P
<b>Amphibians and Reptiles</b>			
Bog turtle	<i>Clemmys muhlenbergii</i>	FT, SE	P
Corn snake	<i>Elaphe guttata</i>	SE	P
Eastern mud salamander	<i>Pseudotriton montanus montanus</i>	ST	P
Northern pine snake	<i>Pituophis melanoleucus melanoleucus</i>	ST	P
Southern gray treefrog	<i>Hyla chrysoscelis</i>	SE	P
Timber rattlesnake	<i>Crotalus horridus</i>	SE	P
Pine Barrens treefrog	<i>Hyla andersonii</i>	ST	P
Wood turtle	<i>Glyptemys insculpta</i>	ST	P
<b>Invertebrates</b>			
Arogos skipper	<i>Atrytone arogos</i>	SE	P
Frosted elfin	<i>Callophrys irus</i>	ST	P
Silver-bordered fritillary	<i>Boloria selene</i>	ST	P
<b>Plants</b>			
American chaffseed	<i>Schwalbea americana</i>	FE, SE	P
Bog (Yellow) asphodel	<i>Nartheicum americanum</i>	C, SE	P
Knieskern's beaked-rush	<i>Rhynchospora knieskernii</i>	FT, SE	P
Swamp pink	<i>Helonias bullata</i>	FT, SE	P

Notes: FE = Federally Endangered, FT = Federally Threatened, C = Candidate Species, SE = State Endangered, ST = State Threatened, P = Potential, O = Observed

Source: 87<sup>th</sup> Civil Engineer Squadron 2012, Air Mobility Command 2008, New Jersey Department of Environmental Protection 2013.

## Special Status Species Observed or Potentially Occurring in the Vicinity of Pease ANG

<i>Common Name</i>	<i>Scientific Name</i>	<i>Federal Status/State Status</i>	<i>Occurrence On Portsmouth International Airport</i>
<b>Birds</b>			
Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST	O
Common Loon	<i>Gavia immer</i>	ST	O
Common Nighthawk	<i>Chordeiles minor</i>	SE	O
Common Tern	<i>Sterna hirundo</i>	ST	O
Northern Harrier	<i>Circus cyaneus</i>	SE	O
Peregrine Falcon	<i>Falco peregrinus</i>	ST	O
Upland Sandpiper	<i>Bartramia longicauda</i>	SE	O
<b>Mammals</b>			
New England cottontail	<i>Sylvilagus transitionalis</i>	C, SE	P
<b>Amphibians and Reptiles</b>			
Blanding's turtle	<i>Emydoidea blandingii</i>	SE	P
<b>Plants</b>			
Large bur-reed	<i>Sparganium eurycarpum</i>	ST	P
Northern blazing star	<i>Liatris scariosa</i> var. <i>novae-angliae</i>	SE	P
Seaside mallow	<i>Hibiscus moscheutos</i>	SE	P
Small whorled pogonia	<i>Isotria medeoloides</i>	FT, ST	U

Notes: FT = Federally Threatened, C = Candidate Species, SE = State Endangered, ST = State Threatened, O = Observed, P = Potential; U = Unlikely

Source: 157<sup>th</sup> Air Refueling Wing 2013, New Hampshire Fish and Game 2013, New Hampshire Natural Heritage Bureau 2013.

### Special Status Species Observed or Potentially Occurring in the Vicinity of Pittsburgh ANG

<i>Common Name</i>	<i>Scientific Name</i>	<i>Federal Status/State Status</i>	<i>Occurrence On Pittsburgh International Airport</i>
<b>Birds</b>			
Short-eared Owl	<i>Asio flammeus</i>	SE	P
Northern Harrier	<i>Circus cyaneus</i>	ST	P
Peregrine Falcon	<i>Falco peregrinus</i>	SE	P
Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST	P
Migrant Loggerhead Shrike	<i>Lanius ludovicianus migrans</i>	SE	P
<b>Mammals</b>			
Indiana bat	<i>Myotis sodalis</i>	FE	P
<b>Amphibians and Reptiles</b>			
Northern cricket frog	<i>Acris crepitans</i>	SE	P
Kirtland's snake	<i>Clonophis kirtlandii</i>	SE	P
Eastern massasauga	<i>Sistrurus catenatus catenatus</i>	C, SE	P
<b>Fish</b>			
Warmouth	<i>Chaenobryttus gulosus</i>	SE	U
Ghost shiner	<i>Notropis buchanani</i>	SE	U
Bluebreast darter	<i>Etheostoma camurum</i>	ST	U
Tippecanoe darter	<i>Etheostoma tippecanoe</i>	ST	U
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	ST	U
<b>Plants</b>			
Northern water plantain	<i>Alisma triviale</i>	SE	P
Scarlet ammannia	<i>Ammannia coccinea</i>	SE	P
Carey's sedge	<i>Carex careyana</i>	SE	P
Cattail sedge	<i>Carex typhina</i>	SE	P
Vasevine leather-flower	<i>Clematis viorna</i>	SE	P
Small yellow lady's-slipper	<i>Cypripedium parviflorum</i> var. <i>parviflorum</i>	SE	P
Tall larkspur	<i>Delphinium exaltatum</i>	SE	P
Common shootingstar	<i>Dodecatheon meadia</i>	SE	P
Four-angled spike-rush	<i>Eleocharis quadrangulata</i>	SE	P
Cluster fescue	<i>Festuca paradoxa</i>	SE	P
Bicknell's hoary rockrose	<i>Helianthemum bicknellii</i>	SE	P
Purple rocket	<i>Iodanthus pinnatifidus</i>	SE	P
Crested dwarf iris	<i>Iris cristata</i>	SE	P
Forked rush	<i>Juncus dichotomus</i>	SE	P
American gromwell	<i>Lithospermum latifolium</i>	SE	P
Large-flowered marshallia	<i>Marshallia grandiflora</i>	SE	P
Oblique milkvine	<i>Matelea obliqua</i>	SE	P
Spotted beebalm	<i>Monarda punctata</i>	SE	P
Northern watermilfoil	<i>Myriophyllum exallescens</i>	SE	P
Round hickorynut	<i>Obovaria subrotunda</i>	SE	P
False gromwell	<i>Onosmodium molle</i>	SE	P
Passionflower	<i>Passiflora lutea</i>	SE	P
Balsam poplar	<i>Populus balsamifera</i>	SE	P
Tennessee pondweed	<i>Potamogeton tennesseensis</i>	SE	P
Crepis rattlesnake-root	<i>Prenanthes crepidinea</i>	SE	P

**Special Status Species Observed or Potentially Occurring in the Vicinity of  
Pittsburgh ANG**

<i>Common Name</i>	<i>Scientific Name</i>	<i>Federal Status/State Status</i>	<i>Occurrence On Pittsburgh International Airport</i>
Eastern blue-eyed grass	<i>Sisyrinchium atlanticum</i>	SE	P
Wild hyacinth	<i>Triteleia hyacinthina</i>	ST	P
Harbinger of spring	<i>Erigenia bulbosa</i>	ST	P
Torrey's rush	<i>Juncus torreyi</i>	ST	O
Common hoptree	<i>Ptelea trifoliata</i>	ST	P
Limestone petunia	<i>Ruellia strepens</i>	ST	P
<b>Invertebrates</b>			
Sheepnose mussel	<i>Plethobasus cyphus</i>	FE, ST	U
Snuffbox	<i>Epioblasma triquetra</i>	SE	U
Gravel chub	<i>Erimystax x-punctatus</i>	SE	U
Rabbitsfoot	<i>Quadrula cylindrica</i>	C, SE	U
Pistolgrip mussel	<i>Quadrula verrucosa</i>	SE	U

Notes: FE = Federally Endangered, C = Candidate Species, SE = State Endangered, ST = State Threatened, O = Observed, P = Potential; U = Unlikely

Source: Pennsylvania Natural Heritage Program 2013, 171<sup>st</sup> Air Refueling Wing 2012.



**Special Status Species Observed or Potentially Occurring in the Vicinity of  
Rickenbacker ANGS**

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Occurrence on Rickenbacker International Airport</i>
<b>Birds</b>			
Short-eared Owl	<i>Asio flammeus</i>	SE	P
Northern Harrier	<i>Circus cyaneus</i>	SE	O
Barn Owl	<i>Tyto alba</i>	ST	P
Peregrine Falcon	<i>Falco peregrinus</i>	FSC, ST	P
Upland Sandpiper	<i>Bartramia longicauda</i>	SE	P
Bald Eagle	<i>Haliaeetus leucocephalus</i>	ST	P
Migrant Loggerhead Shrike	<i>Lanius ludovicianus migrans</i>	SE	P
<b>Mammals</b>			
Indiana bat	<i>Myotis sodalis</i>	FE, SE	P
<b>Amphibians and Reptiles</b>			
Kirtland's snake	<i>Clonophis kirtlandii</i>	SE	P
Eastern massasauga	<i>Sistrurus catenatus catenatus</i>	C, SE	P
<b>Fish</b>			
Warmouth	<i>Chaenobryttus gulosus</i>	SE	U
Gravel chub	<i>Erimystax x-punctatus</i>	SE	U
Ghost shiner	<i>Notropis buechanani</i>	SE	U
Bluebreast darter	<i>Etheostoma camurum</i>	ST	U
Tippecanoe darter	<i>Etheostoma tippecanoe</i>	ST	U
Southern redbelly dace	<i>Phoxinus erythrogaster</i>	ST	U
<b>Invertebrates</b>			
Snuffbox	<i>Epioblasma triquetra</i>	FE, SE	U
Rabbitsfoot	<i>Quadrula cylindrica</i>	C, SE	U
Pistolgrip mussel	<i>Quadrula verrucosa</i>	SE	U
Sheepnose mussel	<i>Plethobasus cyphus</i>	FE, ST	U
<b>Plants</b>			
Gattinger's-foxglove	<i>Acorus americanus</i>	ST	P
Spreading rockcress	<i>Arabis patens</i>	SE	P
Northern water plantain	<i>Alisma triviale</i>	SE	P
Scarlet ammanna	<i>Ammannia coccinea</i>	SE	P
Carey's sedge	<i>Carex careyana</i>	SE	P
Cattail sedge	<i>Carex typhina</i>	SE	P
Vasevine leather-flower	<i>Clematis viorna</i>	SE	P
Small yellow lady's-slipper	<i>Cypripedium parviflorum</i> var. <i>parviflorum</i>	SE	P
Tall larkspur	<i>Delphinium exaltatum</i>	SE	P
Common shootingstar	<i>Dodecatheon meadia</i>	SE	P
Four-angled spike-rush	<i>Eleocharis quadrangulata</i>	SE	P
Cluster fescue	<i>Festuca paradoxa</i>	SE	P
Bicknell's hoary rockrose	<i>Helianthemum bicknellii</i>	SE	P
Purple rocket	<i>Iodanthus pinnatifidus</i>	SE	P
Crested dwarf iris	<i>Iris cristata</i>	SE	P
Forked rush	<i>Juncus dichotomus</i>	SE	P
American gromwell	<i>Lithospermum latifolium</i>	SE	P

**Special Status Species Observed or Potentially Occurring in the Vicinity of  
Rickenbacker ANGS**

<i>Common Name</i>	<i>Scientific Name</i>	<i>Status</i>	<i>Occurrence on Rickenbacker International Airport</i>
Large-flowered marshallia	<i>Marshallia grandiflora</i>	SE	P
Oblique milkvine	<i>Matelea obliqua</i>	SE	P
Spotted beebalm	<i>Monarda punctata</i>	SE	P
Northern watermilfoil	<i>Myriophyllum exalbescens</i>	SE	P
Round hickorynut	<i>Obovaria subrotunda</i>	SE	P
False gromwell	<i>Onosmodium molle</i>	SE	P
Passionflower	<i>Passiflora lutea</i>	SE	P
Balsam poplar	<i>Populus balsamifera</i>	SE	P
Tennessee pondweed	<i>Potamogeton tennesseensis</i>	SE	P
Crepis rattlesnakeroot	<i>Prenanthes crepidinea</i>	SE	P
Eastern blue-eyed grass	<i>Sisyrinchium atlanticum</i>	SE	P
Wild hyacinth	<i>Triteleia hyacinthina</i>	ST	P
Harbinger of spring	<i>Erigenia bulbosa</i>	ST	P
Torrey's rush	<i>Juncus torreyi</i>	ST	P
Common hoptree	<i>Ptelea trifoliata</i>	ST	P
Limestone petunia	<i>Ruellia strepens</i>	ST	P

*Notes* FT = Federal Threatened, FE = Federal Endangered, FC = Federal Candidate, ST = State Threatened, SE = State Endangered, O = Observed, P = Potential, U = Unlikely; FSC = Federal Species of Concern

*Sources:* Ohio Department of Natural Resources 2012; United States Fish and Wildlife Service 2005, 2010.

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**Appendix F**

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***Final General Conformity Determination for  
KC-46A Alternative Beddown Location***





**Final  
General Conformity Determination  
for  
KC-46A Alternative Beddown  
Location**

**108th Wing,  
Joint Base McGuire-Dix-Lakehurst,  
New Jersey**



**May 2014**



## ACRONYMS AND ABBREVIATIONS

°F	degree Fahrenheit	NGB	National Guard Bureau
108 WG	108 <sup>th</sup> Wing	NJANG	New Jersey Air National Guard
AAQS	Ambient Air Quality Standards	NJDEP	New Jersey Department of Environmental Protection
AFB	Air Force Base	NO <sub>2</sub>	Nitrogen Dioxide
AFCEC	Air Force Civil Engineering Center	NO <sub>x</sub>	Oxides of Nitrogen
AFI	Air Force Instruction	O <sub>3</sub>	Ozone
AGE	Aerospace Ground Equipment	PAA	Primary Aerospace Vehicles Authorized
AGL	Above Ground Level	Pb	Lead
ANGS	Air National Guard Station	PM <sub>10</sub>	Particulate Matter Less Than or Equal to 10 Microns in Diameter
ARW	Air Refueling Wing	PM <sub>2.5</sub>	Particulate Matter Less Than or Equal to 2.5 Microns in Diameter
CAA	Clean Air Act	POV	Privately-Owned Vehicle
CEQ	Council on Environmental Quality	ROI	Region of Influence
CFR	Code of Federal Regulations	SIP	State Implementation Plan
CO	Carbon Monoxide	SO <sub>2</sub>	Sulfur Dioxide
CO <sub>2e</sub>	Carbon Dioxide Equivalent	SO <sub>x</sub>	Oxides of Sulfur
EDMS	Emissions and Dispersion Modeling System	tpy	Tons Per Year
EIS	Environmental Impact Statement	U.S.	United States
FAA	Federal Aviation Administration	USAF	United States Air Force
JB MDL	Joint Base McGuire-Dix-Lakehurst	USC	United States Code
MOB	Main Operating Base	USEPA	United States Environmental Protection Agency
MOB 2	Second Main Operating Base	VOC	Volatile Organic Compound
NAAQS	National Ambient Air Quality Standards		
NAS	Naval Air Station		
NEPA	National Environmental Policy Act		

**GENERAL CONFORMITY DETERMINATION FOR THE  
KC-46A ALTERNATIVE BEDDOWN LOCATION,  
108<sup>TH</sup> WING JOINT BASE MCGUIRE-DIX-LAKEHURST, NEW JERSEY**

**TABLE OF CONTENTS**

<b>ACRONYMS AND ABBREVIATIONS.....</b>	<b>INSIDE FRONT COVER</b>
<b>EXECUTIVE SUMMARY .....</b>	<b>ES-1</b>
<b>1.0 INTRODUCTION.....</b>	<b>1</b>
<b>2.0 AIR QUALITY STANDARDS .....</b>	<b>2</b>
2.1 AIR QUALITY DESIGNATIONS .....	2
2.2 FEDERAL REQUIREMENTS .....	4
2.3 STATE REQUIREMENTS .....	4
2.4 GENERAL CONFORMITY REGULATIONS .....	4
2.5 GENERAL CONFORMITY ANALYSIS PROCEDURES .....	5
<b>3.0 SUMMARY OF ALTERNATIVE #2 .....</b>	<b>5</b>
3.1 LOCATION OF ALTERNATIVE #2.....	5
3.2 ALTERNATIVE #2 DESCRIPTION .....	5
3.3 ELEMENTS OF ALTERNATIVE #2 RESULTING IN INCREASED EMISSIONS.....	7
3.4 EXISTING CONDITIONS – CLIMATE.....	7
3.5 EXISTING AIR QUALITY ATTAINMENT STATUS.....	8
<b>4.0 GENERAL CONFORMITY DETERMINATION .....</b>	<b>9</b>
4.1 APPLICABILITY ANALYSIS .....	9
4.2 EXEMPTIONS FROM GENERAL CONFORMITY REQUIREMENTS .....	9
4.3 EMISSION ESTIMATES .....	9
4.4 APPLICABILITY OF GENERAL CONFORMITY TO THIS FEDERAL ACTION .....	12
4.5 GENERAL CONFORMITY DETERMINATION .....	12
<b>5.0 FINDING OF CONFORMITY .....</b>	<b>14</b>
<b>6.0 LIST OF PREPARERS AND CONTRIBUTORS.....</b>	<b>14</b>
<b>7.0 REFERENCES.....</b>	<b>14</b>

## **APPENDICES**

### **APPENDIX A EMISSION CALCULATIONS**

### **APPENDIX B AGENCY COORDINATION**

## **FIGURES**

1	Regional Location, JB MDL.....	6
---	--------------------------------	---

## **TABLES**

ES-1	Annual Construction Emissions Under Alternative #2.....	ES-3
ES-2	Comparison of Baseline and Proposed Annual Operational Emissions of Non- Attainment and Maintenance Criteria Pollutants, 108 WG Installation .....	ES-4
ES-3	Comparison of Baseline Actual Emissions and McGuire AFB SIP Budget .....	ES-5
1	Ambient Air Quality Standards .....	3
2	Changes to 108 WG Airfield Operations with Proposed KC-46A Aircraft .....	7
3	<i>De Minimis</i> Thresholds .....	8
4	108 WG Baseline Emissions at JB MDL.....	10
5	Annual Construction Emissions Under Alternative #2.....	11
6	Comparison of Baseline and Proposed Annual Operational Emissions, 108 WG Installation.....	12
7	Comparison of Baseline Actual Emissions and McGuire AFB SIP Budget .....	13

## **EXECUTIVE SUMMARY**

### **PROPOSED ACTION**

The United States Air Force (USAF) plans to replace existing KC-135s with the KC-46A, which will be a new aircraft to the USAF's fleet. This action would involve the beddown of one KC-46A squadron consisting of 12 Primary Aerospace Vehicles Authorized (PAA), and establishing a KC-46A Main Operating Base (MOB). The Secretary of the Air Force proposes to beddown KC-46A aircraft for the Second Main Operating Base (MOB 2) at one of five alternative locations:

- Alternative #1 – 190<sup>th</sup> Air Refueling Wing (ARW), Forbes Air National Guard Station (ANGS), Kansas;
- Alternative #2 – 108<sup>th</sup> Wing (108 WG) , Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Alternative #3 – 157<sup>th</sup> ARW, Pease ANGS, New Hampshire;
- Alternative #4 – 171<sup>st</sup> ARW, Pittsburgh ANGS, Pennsylvania; and
- Alternative #5 – 121<sup>st</sup> ARW, Rickenbacker ANGS, Ohio.

As stated above, the Secretary of the Air Force proposes to beddown KC-46A aircraft for the MOB 2 at one of five alternative locations. One of these alternative locations is the 108 WG, located at JB MDL, New Jersey. Alternative #2 proposes to replace the existing KC-135 aircraft with the KC-46A at JB MDL, which is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. If this location is chosen, the Proposed Action would contribute to regional air emissions at JB MDL, New Jersey.

### **CONFORMITY BACKGROUND**

Air quality at a specific location is described by the concentration of various pollutants in the atmosphere, and is determined by local and regional emissions, the size and topography of the air basin, and local and regional meteorological influences. The significance of a pollutant concentration in a region or geographical area is determined by comparing it to federal and/or state ambient air quality standards (AAQS). Under the authority of the Clean Air Act (CAA) and subsequent amendments, the United States Environmental Protection Agency (USEPA) has established National Ambient Air Quality Standards (NAAQS) to protect public health and welfare, with an adequate margin of safety. These NAAQS represent the maximum allowable atmospheric concentrations and were established for seven "criteria" pollutants: ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>), particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>), and lead (Pb). Oxides of nitrogen (NO<sub>x</sub>) include nitric oxide, NO<sub>2</sub>, and other nitrogen compounds. Because volatile organic compounds (VOCs) and NO<sub>x</sub> are

precursors to the formation of O<sub>3</sub> in the atmosphere, control of these pollutants is the primary method of reducing O<sub>3</sub> concentrations in the atmosphere.

Should Alternative #2 be implemented, the KC-46A aircraft would be beddown at the 108 WG installation at JB MDL in New Jersey. The USEPA has classified the Philadelphia-Wilmington-Atlantic City area of the states of Pennsylvania, Delaware, and New Jersey as nonattainment for the 8-hour O<sub>3</sub> (marginal nonattainment) and PM<sub>2.5</sub> NAAQS, and a maintenance area for CO. The region is designated as an attainment/unclassified area for all other pollutants. While General Conformity applicability analyses and determinations are not required for those criteria pollutants that are designated as being in attainment of the NAAQS, implementation of this alternative would be subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Implementing regulations were revised by the USEPA on April 5, 2010, and changed the existing regulations found in 40 Code of Federal Regulations (CFR) Part 51, Subpart W and Part 93, Subpart B (USEPA 2010).

Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (NO<sub>x</sub> and VOCs), PM<sub>2.5</sub>, and CO emissions are all 100 tons per year (tpy). According to the CAA general conformity rule, a federal agency (in this case, the National Guard Bureau [NGB]) must assess whether their Proposed Action would contribute to the further degradation of air quality or prevent attainment of air quality standards in areas that are designated as nonattainment or maintenance.

Therefore, the NGB is conducting this review to document whether the Proposed Action meets the conformity rule. There are two main components to this documentation of conformity: 1) an applicability analysis to determine whether a conformity determination is required, and if it is, 2) a conformity determination to evaluate whether the action conforms to the attainment plans in the applicable State Implementation Plan (SIP).

Under the General Conformity Rule, air emissions from a Proposed Action must be below *de minimis* levels for nonattainment or maintenance pollutants to be exempt from a formal conformity determination. Proposed Actions that equal or exceed these thresholds in any given year must undergo a detailed analysis, and a formal conformity determination is required. General Conformity applicability analyses and determinations are not required for those criteria pollutants that are designated as being in attainment of the NAAQS.

## **EMISSIONS EVALUATION**

The 108 WG currently flies and maintains eight KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 108 WG include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations

involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

Alternative #2 involves both construction of new facilities to accommodate the KC-46A aircraft, and operational emissions associated with the KC-46A aircraft. The KC-46A beddown at JB MDL would require construction and renovation of existing airfield facilities, including hangars, buildings, and aprons and ramps. Air quality impacts resulting from the proposed construction activities would be below the applicable *de minimis* thresholds for all pollutants. Table ES-1 provides a summary of the construction emissions for the proposed action.

**Table ES-1. Annual Construction Emissions Under Alternative #2**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>PM<sub>2.5</sub></i>
Project #1 - Addition to Hangar 3333	1.43	2.28	0.40	1.77
Project #2 - Addition to Hangar 3336	1.46	2.32	0.41	1.80
Project #3 - Internal Renovations to Hangar 3322	0.30	0.47	0.06	0.04
Project #4 - New Simulator Building	0.54	0.85	0.15	0.63
Project #5 - Modifications to Existing Parking Ramp and Taxiway	4.28	10.18	1.06	3.00
Project #6 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.01	0.01	0.00	0.00
<b>Total Option 1</b>	<b>8.01</b>	<b>16.11</b>	<b>2.08</b>	<b>7.23</b>
<b><i>De minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide.

Emissions sources associated with operation of the proposed KC-46A beddown at the 108 WG installation include (1) operations and engine maintenance/testing of aircraft; (2) on-site privately-owned vehicles (POVs); (3) off-site POV commutes; and (4) Aerospace Ground Equipment (AGE). It was assumed that other sources, including non-road mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged.

Table ES-2 summarizes the annual operational emissions that would result from KC-46A operations at the 108 WG installation. Table ES-2 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at JB MDL. As shown in Table ES-2, the net emissions increases are below the *de minimis* thresholds for all pollutants except NO<sub>x</sub>. Emissions of NO<sub>x</sub> would exceed the *de minimis* threshold, and this alternative would therefore require a Conformity Determination under the General Conformity Rule.

**Table ES-2. Comparison of Baseline and Proposed Annual Operational Emissions of Non-Attainment and Maintenance Criteria Pollutants, 108 WG Installation**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR			
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	3.21	49.03	83.34	0.39
AGE	0.01	0.01	0.09	0.00
Engine Tests	0.14	2.01	0.55	0.01
POVs	5.12	110.72	5.20	0.12
<b>Total</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>0.53</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	26.19	100.37	294.03	0.96
AGE	0.01	0.02	0.17	0.01
Engine Tests	1.53	5.23	1.38	0.01
POVs	4.75	126.34	3.97	0.12
<b>Total</b>	<b>32.48</b>	<b>231.97</b>	<b>299.54</b>	<b>1.11</b>
<b>Net Increase</b>	<b>24.01</b>	<b>70.19</b>	<b>210.36</b>	<b>0.58</b>
<b>De minimis Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately-owned vehicle.

In accordance with 40 CFR Part 93, Subpart B, 40 CFR Part 51, Subpart W and the 2010 Air Force Conformity Guide, the incremental increase in emissions above the existing conditions due to Alternative #2 was considered and includes reasonable foreseeable direct and indirect emissions. The applicability analysis has found that this federal action is subject to general conformity, so the federal agency must demonstrate conformity to the SIP.

Based on the evaluation of the emissions associated with the implementation of Alternative #2, the estimated annual net increase in NO<sub>x</sub> emissions from operations would be 210.36 tpy. Therefore, a positive conformity determination is required. To demonstrate positive conformity, the NGB has reviewed the emissions budget in the applicable SIP.

The New Jersey Department of Environmental Protection (NJDEP) has included an emissions budget for McGuire Air Force Base (AFB) and Lakehurst Naval Air Station (NAS) within its currently approved SIP. The emission budget for NO<sub>x</sub> from the currently approved SIP for McGuire AFB is 1,534 tpy (NJDEP 2007). The USAF has calculated actual emissions for calendar year 2011 from McGuire AFB based on current operations using the Emissions and Dispersion Modeling System (EDMS) software (Federal Aviation Administration [FAA] 2013). Table ES-3 presents the actual emissions for 2011 in comparison with the SIP emissions budget.

**Table ES-3. Comparison of Baseline Actual Emissions and McGuire AFB SIP Budget**

<i>Emission Source</i>	ANNUAL EMISSIONS, TONS/YEAR
	<i>NO<sub>x</sub></i>
McGuire Stationary Sources (Title V), CY2011	23.24
Air Operations (Based and Transient Aircraft, CY2011)	959.4
Non-road Vehicles (2005)	92.65
Other point sources	7.6
Capital Improvements Plan, annual	10.29
<b>Total</b>	<b>1093.2</b>
<b>Remaining Emissions Budget</b>	<b>1534.0</b>
<b>Additional Emissions Budget</b>	<b>440.8</b>

As shown in Table ES-3, the amount of NO<sub>x</sub> emissions accounted for in the SIP for McGuire AFB exceeds the actual emissions by 440.8 tpy; thus, the net emissions increase (210.36 tpy) that would be associated with Alternative #2 is accommodated within the existing SIP budget by 230.44 tpy. The net NO<sub>x</sub> emissions from the USAF action would therefore not exceed the emissions budgets in the applicable SIP, and Alternative #2 would conform to the SIP.

#### **CONCLUSIONS OF THE GENERAL CONFORMITY DETERMINATION**

Based on the evaluation of the emissions associated with the implementation of Alternative #2, the estimated annual net increase in NO<sub>x</sub> emissions from operations would be 210.36 tpy. Therefore, a conformity determination was conducted, and it was found that the emissions increase in NO<sub>x</sub> associated with Alternative #2 is accounted for in the currently approved SIP emissions budget. Accordingly, Alternative #2 will conform to the currently approved SIP.

#### **FINDING OF CONFORMITY**

The USAF has reviewed and evaluated the conformity applicability analysis and documentation, and it has determined that a draft positive general conformity may be made based on the identification and accounting for the emissions within the McGuire AFB emissions budget in the SIP per 40 CFR § 93.158(a)(5)(i)(A).



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## **1.0 INTRODUCTION**

The United States Air Force (USAF) plans to replace existing KC-135s with the KC-46A, which will be a new aircraft to the USAF's fleet. This action would involve the beddown of one KC-46A squadron consisting of 12 Primary Aerospace Vehicles Authorized (PAA), and establishing a KC-46A Main Operating Base (MOB). The Secretary of the Air Force proposes to beddown KC-46A aircraft for the Second Main Operating Base (MOB 2) at one of five alternative locations:

- Alternative #1 – 190<sup>th</sup> Air Refueling Wing (ARW), Forbes Air National Guard Station (ANGS), Kansas;
- Alternative #2 – 108<sup>th</sup> Wing (108 WG) , Joint Base McGuire-Dix-Lakehurst (JB MDL), New Jersey;
- Alternative #3 – 157<sup>th</sup> ARW, Pease ANGS, New Hampshire;
- Alternative #4 – 171<sup>st</sup> ARW, Pittsburgh ANGS, Pennsylvania; and
- Alternative #5 – 121<sup>st</sup> ARW, Rickenbacker ANGS, Ohio.

In accordance with the National Environmental Policy Act (NEPA) of 1969 (42 United States Code [USC] 4321-4347), Council on Environmental Quality (CEQ) *Regulations for Implementing the Procedural Provisions of NEPA* (40 Code of Federal Regulations [CFR] Parts 1500-1508), and 32 CFR Part 989 *et seq.*, *Environmental Impact Analysis Process* (formerly promulgated as Air Force Instruction [AFI] 32-7061), the National Guard Bureau (NGB) has prepared an Environmental Impact Statement (EIS), which considers the potential consequences to the human and natural environment that may result from implementation of this action. This Conformity Determination is included as Appendix F of the EIS.

This document addresses the United States Environmental Protection Agency's (USEPA) General Conformity Rule requirements and how they relate to implementation of the Proposed Action or alternatives. The Clean Air Act (CAA) requires any federal agency, such as the NGB, to assess whether their proposed action would contribute to further degradation of air quality or prevent the attainment of air quality standards. As an alternative to the Preferred Alternative analyzed in the EIS, the NGB would propose to implement a major federal action that would contribute to regional air emissions at JB MDL, New Jersey. JB MDL is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. Therefore, the Region of Influence (ROI) for this alternative includes the Philadelphia-Wilmington-Atlantic City area of the states of Pennsylvania, Delaware, and New Jersey. The ROI is classified as nonattainment for the 8-hour ozone (O<sub>3</sub>) (marginal nonattainment) National Ambient Air Quality Standards (NAAQS), and a maintenance area for carbon monoxide (CO) and particulate matter less than or equal to 2.5 microns in diameter (PM<sub>2.5</sub>).

## **2.0 AIR QUALITY STANDARDS**

Individual states are delegated the responsibility to regulate air quality in order to achieve or maintain air quality in attainment with regulatory standards. The New Jersey Department of Environmental Protection (NJDEP) is the agency responsible for the regulation of air quality within the state of New Jersey. The State of New Jersey regulates air quality through the New Jersey Administrative Code, Title 7:27A through 7:27D. The State of New Jersey has adopted additional ambient air quality standards (AAQS) that apply within the state. The NAAQS and state AAQS are summarized in Table 1.

### **2.1 AIR QUALITY DESIGNATIONS**

As part of the CAA, the USEPA has established criteria for seven major pollutants of concern, called “criteria pollutants.” These criteria pollutants include CO, sulfur dioxide (SO<sub>2</sub>), nitrogen dioxide (NO<sub>2</sub>), O<sub>3</sub>, particulate matter less than or equal to 10 microns in diameter (PM<sub>10</sub>), PM<sub>2.5</sub>, and lead (Pb). Emissions of Pb are not addressed because the affected areas contain no significant sources of this criteria pollutant, and 108 WG operations would not result in substantial emissions of Pb. The criteria set for these pollutants, the NAAQS, represent maximum levels of background pollution that are considered safe, with an adequate margin of safety to protect the public health and welfare. Based on measured ambient criteria pollutant data, the USEPA designates areas in the United States (U.S.) as having air quality better than (attainment) or worse than (nonattainment) the NAAQS. Areas that lack monitoring data to demonstrate attainment or nonattainment status are designated as unclassified and are treated as attainment areas for regulatory purposes. Once a nonattainment area meets the standards and additional redesignation requirements in the CAA (Section 107(d)(3)(E)), USEPA will designate the area as a “maintenance area.” Maintenance areas are subject to the requirements of maintenance plans that are designed to ensure that the area continues to meet the standards. A maintenance area remains subject to the General Conformity Rule. Varying levels of attainment have been established for O<sub>3</sub>, CO, and PM<sub>10</sub> to indicate the severity of the air quality problem (i.e., the classification runs from moderate to serious for CO and PM<sub>10</sub> and from marginal to extreme for O<sub>3</sub>). As stated in Chapter 1.0, the ROI is classified as nonattainment for the 8-hour O<sub>3</sub> (marginal nonattainment) NAAQS, and a maintenance area for CO and PM<sub>2.5</sub>. Accordingly, this Conformity Determination addresses emissions of O<sub>3</sub> precursors (oxides of nitrogen [NO<sub>x</sub>] and volatile organic compounds [VOCs]), and emissions of CO and PM<sub>2.5</sub>.

**Table 1. Ambient Air Quality Standards**

<i>Pollutant</i>	<i>Averaging Time</i>	NATIONAL STANDARDS <sup>a</sup>		NEW JERSEY STANDARDS	
		<i>Primary</i> <sup>b,c</sup>	<i>Secondary</i> <sup>b,d</sup>	<i>Primary</i> <sup>b,c</sup>	<i>Secondary</i> <sup>b,d</sup>
O <sub>3</sub>	8-hour	0.075 ppm (147 µg/m <sup>3</sup> )	Same as primary	—	—
	1-hour	—	—	0.12 ppm (235 µg/m <sup>3</sup> )	0.08 ppm (160 µg/m <sup>3</sup> )
CO	8-hour	9 ppm (10 mg/m <sup>3</sup> )	—	9 ppm (10 mg/m <sup>3</sup> )	Same as primary
	1-hour	35 ppm (40 mg/m <sup>3</sup> )	—	35 ppm (40 mg/m <sup>3</sup> )	Same as primary
NO <sub>2</sub>	Annual	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary	0.053 ppm (100 µg/m <sup>3</sup> )	Same as primary
	1-hour	0.100 ppm (188 µg/m <sup>3</sup> )	—	—	—
SO <sub>2</sub>	Annual	—	—	0.03 ppm (80 µg/m <sup>3</sup> )	0.02 ppm (60 µg/m <sup>3</sup> )
	24-hour	—	—	0.14 ppm (365 µg/m <sup>3</sup> )	0.1 ppm (260 µg/m <sup>3</sup> )
	3-hour	—	0.5 ppm (1,300 µg/m <sup>3</sup> )	—	0.5 ppm (1,300 µg/m <sup>3</sup> )
	1-hour	0.075 ppm (189 µg/m <sup>3</sup> )	—	—	—
Total Suspended Particulate	Annual	—	—	75 µg/m <sup>3</sup>	60 µg/m <sup>3</sup>
	24-hour	—	—	260 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
PM <sub>10</sub>	Annual	—	Same as primary	—	—
	24-hour	150 µg/m <sup>3</sup>	Same as primary	—	—
PM <sub>2.5</sub>	Annual	12 µg/m <sup>3</sup>	15 µg/m <sup>3</sup>	—	—
	24-hour	35 µg/m <sup>3</sup>	Same as primary	—	—
Pb	Rolling 3-month period	0.15 µg/m <sup>3</sup>	Same as primary	1.5 µg/m <sup>3</sup>	Same as primary

*Notes:* a Standards other than the 1-hour ozone, 24-hour PM<sub>10</sub>, 24-hour PM<sub>2.5</sub>, and those based on annual averages are not to be exceeded more than once a year. The 8-hour ozone national standard has replaced the 1-hour ozone national standard.  
b Concentrations are expressed first in units in which they were promulgated. Equivalent units given in parenthesis.  
c Primary Standards: The levels of air quality necessary, with an adequate margin of safety to protect the public health. Each state must attain the primary standards no later than 3 years after that state's implementation plan is approved by the USEPA.  
d Secondary Standards: The levels of air quality necessary to protect the public welfare from any known or anticipated adverse effects of a pollutant.  
µg/m<sup>3</sup> = micrograms per cubic meter; CO = carbon monoxide; mg/m<sup>3</sup> = milligrams per cubic meter; NO<sub>2</sub> = nitrogen dioxide; O<sub>3</sub> = ozone; Pb = lead; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; ppm = parts per million; SO<sub>2</sub> = sulfur dioxide

## **2.2 FEDERAL REQUIREMENTS**

The CAA (42 USC §§ 7401-7671q, as amended) provided the authority for the USEPA to establish nationwide air quality standards to protect public health and welfare. Federal standards, known as the NAAQS, were developed for six criteria pollutants: O<sub>3</sub>, NO<sub>2</sub>, CO, SO<sub>2</sub>, particulate matter (both coarse [PM<sub>10</sub>] and fine inhalable particulate matter [PM<sub>2.5</sub>]), and Pb (refer to Table 1). The Act also requires that each state prepare a State Implementation Plan (SIP) for maintaining and improving air quality and eliminating violations of the NAAQS. In nonattainment and maintenance areas, the CAA requires federal agencies to determine whether their proposed actions conform with the applicable SIP and demonstrate that their actions will not (1) cause or contribute to a new violation of the NAAQS, (2) increase the frequency or severity of any existing violation, or (3) delay timely attainment of any standard, emission reduction, or milestone contained in the SIP.

## **2.3 STATE REQUIREMENTS**

The CAA requires each state to develop, adopt, and implement a SIP to achieve, maintain, and enforce federal air quality standards throughout the state. States develop SIPs on a pollutant-by-pollutant basis whenever there is a violation of one or more air quality standards. New Jersey State standards are established by the NJDEP. The state standards must be at least as restrictive as the NAAQS (refer to Table 1).

## **2.4 GENERAL CONFORMITY REGULATIONS**

The General Conformity Rule was promulgated by the USEPA on November 30, 1993 at 40 CFR Part 93, Subpart B “*Determining Conformity of General Federal Actions to State or Federal Implementation Plans*” for all federal activities except those covered under transportation conformity (USEPA 1993). The General Conformity Regulations were revised by the USEPA on April 5, 2010 (75 *Federal Register* 17253-17279) and changed the existing regulations found in 40 CFR Part 51, Subpart W, and Part 93, Subpart B (USEPA 2010). The USEPA’s modifications to 40 CFR Part 51, Subpart W, changed State or Tribal adoption and submittal of general conformity SIPs from a requirement to a voluntary measure in 40 CFR § 51.851(a). In addition, USEPA provided in 40 CFR § 51.851(b) that until such time as USEPA approves a State’s or Tribe’s revision to the conformity implementation plan permitted under this section, that federal agencies must meet the requirements of 40 CFR Part 93, Subpart B.

The General Conformity Rule requires any federal agency responsible for an action in a nonattainment or maintenance area to determine that the action conforms to the applicable SIP. Emissions of attainment pollutants are exempt from conformity analysis. Actions would conform to a SIP if their annual direct and indirect emissions would remain less than the applicable *de minimis* thresholds. Formal conformity determinations are required for any actions that would equal or exceed these thresholds.

General Conformity analyses focus on the net increase in air emissions from a Proposed Action compared to ongoing historical conditions. Existing SIPs are presumed to have accounted for routine, ongoing federal agency activities. Conformity analyses are further limited to those direct and indirect emissions over which the federal agency has continuing program responsibility and control. General conformity analyses are not required to analyze emission sources beyond the responsibility and control of the federal agency, nor are they required to address emissions that are not reasonably foreseeable or reasonably quantifiable.

## **2.5 GENERAL CONFORMITY ANALYSIS PROCEDURES**

The USEPA General Conformity Regulations incorporate a stepwise process, beginning with an applicability analysis (USEPA 1993, 2010). According to USEPA guidance, before any approval is given for a federal action to go forward, the regulating federal agency must apply the applicability requirements found at 40 CFR § 93.153(b) to the federal action to evaluate whether, on a pollutant-by-pollutant basis, a determination of general conformity is required. If the regulating federal agency determines that the General Conformity Regulations do not apply to the federal action, no further analysis or documentation is required. However, if the General Conformity Regulations do apply to a federal action, the action proponent must make its own conformity determination in accordance with the criteria and procedures outlined in the implementing regulations, publish a draft determination of general conformity for public review, consider comments from interested parties, and then publish the final determination of general conformity.

## **3.0 SUMMARY OF ALTERNATIVE #2**

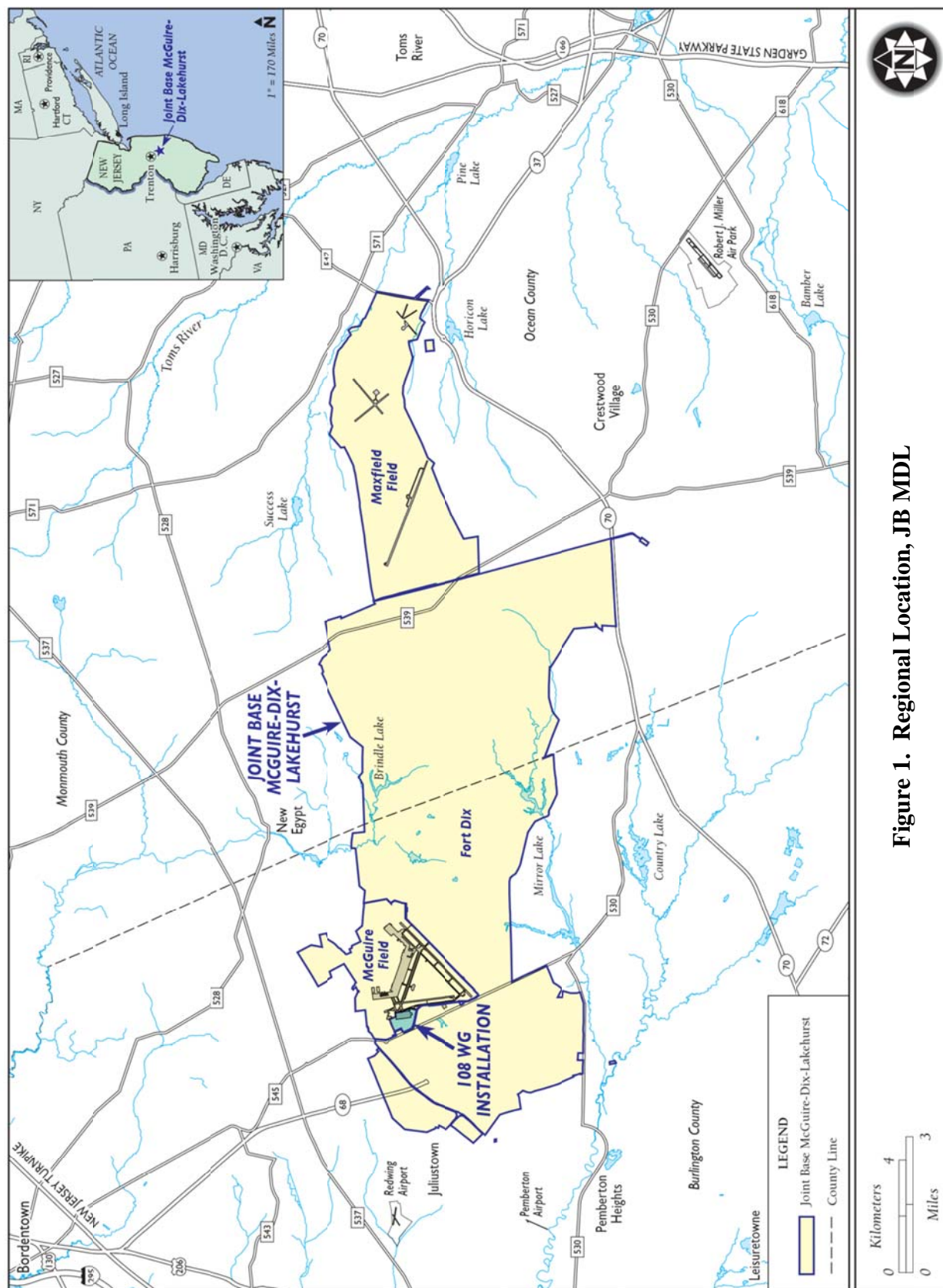
### **3.1 LOCATION OF ALTERNATIVE #2**

The 108 WG of the New Jersey Air National Guard (NJANG) is based at McGuire AFB in New Jersey, at JB MDL. JB MDL is located in the central portion of the state of New Jersey, in Ocean and Burlington counties (Figure 1).

### **3.2 ALTERNATIVE #2 DESCRIPTION**

As an alternative to the Preferred Alternative analyzed in the EIS, the NGB would propose to implement an aircraft conversion for the 108 WG at JB MDL in the state of New Jersey. The 108 WG currently flies and maintains eight KC-135 refueler aircraft to support its air refueling mission. The primary support operations performed at the 108 WG include aircraft fueling, aircraft deicing, aircraft maintenance, aircraft support equipment maintenance, ground vehicle maintenance, fueling of ground vehicles, and facilities maintenance. These operations involve activities such as corrosion control, non-destructive inspection, fuel cell maintenance, engine maintenance, hydraulics, and wheel and tire maintenance.

**General Conformity Determination –KC-46A Alternative Beddown Location,  
108<sup>th</sup> Wing, Joint Base McGuire-Dix-Lakehurst  
Final - May 2014**



**Figure 1. Regional Location, JB MDL**

Alternative #2 would involve the beddown of one KC-46A squadron consisting of 12 PAA, and establishing a MOB 2 at JB MDL. Alternative #2 would convert the existing KC-135 unit to the KC-46A aircraft. In addition, the 108 WG would implement construction projects associated with aircraft conversion at JB MDL. The 108 WG currently provides support for federal, state, and community interests by maintaining highly trained, well-equipped, military forces to provide combat-ready support elements in response to wartime and peacetime tasking; protecting life and property; and preserving peace, order, and public safety.

Should Alternative #2 be implemented, there would be a change to the type of aircraft based at JB MDL; a change to the type of aircraft using the associated airspace; changes to staffing and manpower at the 108 WG; as well as some proposed construction, building renovation, and facility demolition. There would be no new airspace required to implement Alternative #2. The proposed conversion is estimated to commence in 2018. It is likely that construction would begin as early as 2015 and be completed by the time the aircraft conversion takes place.

### **3.3 ELEMENTS OF ALTERNATIVE #2 RESULTING IN INCREASED EMISSIONS**

Alternative #2 involves both construction of new facilities to accommodate the KC-46A aircraft, and operational emissions associated with the KC-46A aircraft.

Under Alternative #2 the 108 WG would convert from 8 KC-135 aircraft to 12 KC-46A aircraft. There would be an increase in the number of airfield operations for the KC-46A aircraft at JB MDL, which would result in an increase in air emissions. Table 2 provides a summary of the changes to 108 WG airfield operations under Alternative #2.

**Table 2. Changes to 108 WG Airfield Operations with Proposed KC-46A Aircraft**

<i>Operations</i>	DEPARTURES		ARRIVALS		TOTALS <sup>1</sup>		<i>Grand Total</i>
	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	<i>Day</i>	<i>Night<sup>2</sup></i>	
Current KC-135 Operations	3,346	815	3,325	854	6,671	1,669	8,340
Proposed KC-46A Operations	8,047	764	7,863	934	15,910	1,698	17,608
Net Change to Airfield Operations							9,268

<sup>1</sup>Includes Closed Patterns (which count as two airfield operations).

<sup>2</sup>Night – Between 10 p.m. and 7 a.m. for environmental night.

### **3.4 EXISTING CONDITIONS – CLIMATE**

JB MDL is located in the central portion of the state of New Jersey, in Ocean and Burlington counties. The climate in the central portion of New Jersey is influenced by its vegetation, with moderation due to its proximity to the Atlantic Ocean. Scrub pine and oak forests dominate the interior southern portion of New Jersey, hence the name, Pine Barrens. Sandy soils, which are porous and not very fertile, have a major effect on the climate of this region. On clear nights, solar radiation absorbed during the day is quickly radiated back into space, resulting in remarkably low minimum temperatures. The porous soil permits any precipitation to rapidly



infiltrate and leave surfaces quite dry. Drier conditions allow for a wider range between the daily maximum and minimum temperatures, and make the area vulnerable to forest fires.

The warmest month of the year is July with an average maximum temperature of 87 degrees Fahrenheit (°F), while the coldest month of the year is January with an average minimum temperature of 22°F. Temperature variations between night and day tend to be moderate during summer with a difference that can reach 24°F, and during winter with an average difference of 20°F. The annual average precipitation at Fort Dix is 47.12 inches. Rainfall is fairly evenly distributed throughout the year. The wettest month of the year is August with an average rainfall of 5.16 inches (Northeast Regional Climate Center 2013). Prevailing winds in New Jersey are from the southwest in summer and from the northwest in winter.

### **3.5 EXISTING AIR QUALITY ATTAINMENT STATUS**

Should Alternative #2 be implemented, the KC-46A aircraft would be beddown at the 108 WG installation at JB MDL in New Jersey. The USEPA has classified the Philadelphia-Wilmington-Atlantic City area of the states of Pennsylvania, Delaware, and New Jersey as nonattainment for the 8-hour O<sub>3</sub> (marginal nonattainment) NAAQS, and a maintenance area for PM<sub>2.5</sub> and CO. The region is designated attainment/unclassified area for all other criteria pollutants. Implementation of this alternative is therefore subject to the requirements of Section 176(c) of the CAA, as articulated in the USEPA General Conformity Rule. Based on the nonattainment classification for the region, the *de minimis* emission thresholds for the General Conformity Rule for O<sub>3</sub> precursors (oxides of nitrogen [NO<sub>x</sub>] and VOCs), PM<sub>2.5</sub>, and CO emissions are all 100 tons per year (tpy).

The applicable *de minimis* thresholds for the affected air basins are listed in Table 3.

**Table 3. *De Minimis* Thresholds**

<i>Affected Air Basin</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOCs</i>	<i>PM<sub>2.5</sub></i>
Philadelphia-Wilmington-Atlantic City	100	100	100	100

*Notes:* Based on the federal *de minimis* threshold for NO<sub>x</sub>, VOCs, CO, and PM<sub>2.5</sub>.  
CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; VOC = volatile organic compound

## **4.0 GENERAL CONFORMITY DETERMINATION**

### **4.1 APPLICABILITY ANALYSIS**

The first step in a general conformity determination is an analysis of whether the requirements apply to the federal action that is proposed in a nonattainment or a maintenance area. Unless exempted by the regulations or otherwise presumed to conform, a federal action requires a general conformity determination for each pollutant where the total of direct and indirect emissions caused by the federal action would equal or exceed an annual *de minimis* emission rate for any given maintenance or nonattainment pollutant (or precursor). For Alternative #2, the pollutants that are evaluated in this General Conformity Determination are NO<sub>x</sub>, VOCs, CO, and PM<sub>2.5</sub>. If a Proposed Action would result in emission increases less than the identified applicable *de minimis* thresholds, then no conformity determination is required.

### **4.2 EXEMPTIONS FROM GENERAL CONFORMITY REQUIREMENTS**

The general conformity requirements apply to a federal action if the net project emissions equal or exceed certain *de minimis* emission rates established in the General Conformity Regulations. The *de minimis* thresholds differ based on the severity of the nonattainment status. The only exceptions to this applicability criterion include certain federal actions that are presumed to conform because of the thorough air quality analysis required to comply with other statutory requirements. Examples of these actions include those subject to the New Source Review program and remedial activities under the Comprehensive Environmental Response, Compensation, and Liability Act. Other federal actions exempt from the conformity process include those actions that would result in no increase in emissions, or an increase in emissions that is clearly *de minimis*. Examples include continuing or recurring activities, routine maintenance and repair, and administrative and planning actions; however, the emissions that would result from this federal action do not meet any of these exempt categories.

### **4.3 EMISSION ESTIMATES**

Existing emissions quantified in the Air Emissions Inventory include emissions from the existing operations of the KC-135 aircraft, which would be replaced under Alternative #2 by the KC-46A aircraft. The emissions in the Air Emissions Inventory were not used for aircraft operations in the baseline analysis because they reflect existing emissions for all aircraft operating at the 108 WG (including transient aircraft) and therefore do not provide a baseline for Alternative #2. Further, the emissions estimates relied on default times in mode for aircraft operations rather than site-specific flight tracks used for the noise analysis in the EIS.

To provide a baseline for evaluating the net emissions increases/decreases associated with Alternative #2, emissions from the KC-135 aircraft operations, aircraft refueling, KC-135 engine testing, KC-135-related Aerospace Ground Equipment (AGE), and privately-owned vehicles

(POVs) associated with KC-135 flight operations were evaluated. Emissions from the KC-135 aircraft operations were calculated based on 2012 aircraft operations utilizing site-specific flight profiles to calculate aircraft operations below a default mixing height of 3,000 feet above ground level (AGL). A discussion of the methodology for quantifying emissions is provided in Appendix A of the EIS. Emissions associated with baseline operations of the KC-135 aircraft are provided in Table 4.

**Table 4. 108 WG Baseline Emissions at JB MDL**

<i>Emission Source</i>	EMISSIONS, TONS/YEAR			
	<i>VOCs</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Baseline Aircraft Operations	3.21	49.03	83.34	0.39
AGE	0.01	0.01	0.09	0.00
Engine Testing	0.14	2.01	0.55	0.01
POVs	5.12	110.72	5.20	0.12
<b>Total Baseline Emissions</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>0.53</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2e</sub> = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately-owned vehicle.

Alternative #2 was assumed to commence in 2015 with construction activities. The following construction projects are proposed under this alternative:

1. Addition to Hangar 3333 - 17,892 square foot addition to existing Maintenance Hangar 3333.
2. Addition to Hangar 3336 - 18,206 square foot addition to existing Fuel Cell Hangar 3336.
3. Renovation of Hangar 3322 - Internal renovations.
4. New Simulator Building - Construction of a new 6,700 square foot simulator building.
5. Modifications to Existing Parking Ramp and Taxiway - Option 1 would add 160,074 square feet of concrete and asphalt to the existing parking ramp; Option 2 would add 14,091 square feet of concrete and asphalt to the existing parking ramp.
6. New Hydrants and Fuel Lines - Addition of 8 new fuel hydrants and lines and demolition of existing hydrants.

Construction emissions include emissions from heavy equipment, construction trucks, worker trips, and fugitive dust. The details of the construction emission calculations are provided in Appendix A. Table 5 summarizes the annual and total construction emissions associated with Alternative #2. The data in Table 5 show that annual emissions for proposed construction activities would not exceed the General Conformity Rule *de minimis* thresholds as set forth in the CAA.

**Table 5. Annual Construction Emissions Under Alternative #2**

<i>Construction Project</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>VOC</i>	<i>PM<sub>2.5</sub></i>
Project #1 - Addition to Hangar 3333	1.43	2.28	0.40	1.77
Project #2 - Addition to Hangar 3336	1.46	2.32	0.41	1.80
Project #3 - Internal Renovations to Hangar 3322	0.30	0.47	0.06	0.04
Project #4 - New Simulator Building	0.54	0.85	0.15	0.63
Project #5 - Modifications to Existing Parking Ramp and Taxiway	4.28	10.18	1.06	3.00
Project #6 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	0.01	0.01	0.00	0.00
<b>Total Option 1</b>	<b>8.01</b>	<b>16.11</b>	<b>2.08</b>	<b>7.23</b>
<b>De minimis Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

*Notes:* Numbers may not add precisely due to rounding.

CO = carbon monoxide; NO<sub>x</sub> = oxides of nitrogen; VOC = volatile organic compound; SO<sub>x</sub> = oxides of sulfur; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; CO<sub>2</sub> = carbon dioxide.

Sources associated with operation of the proposed KC-46A beddown at the 108 WG installation include (1) operations and engine maintenance/testing of aircraft; (2) onsite POVs; (3) offsite POV commuting; and (4) AGE. It was assumed that other sources, including non-road mobile equipment, mobile fuel transfer, and stationary source emissions would be unchanged. In the event that construction of additional facilities requires installation of a new stationary source such as a boiler, it was assumed that the stationary source would be subject to the New Source Review permitting requirements of the NJDEP and would therefore not be subject to the General Conformity Rule under §93.153(d)(1).

Operational data used to calculate projected KC-46A aircraft emissions were obtained from the data used in the project noise analysis. Factors used to calculate combustion emissions for the KC-46A aircraft are based on emissions data developed by Pratt and Whitney for the PW4062 engine (International Civil Aviation Organization 2013). The operational times in mode for the KC-46A engine are based on those currently used for the KC-135 aircraft (Air Force Civil Engineer Center [AFCEC] 2013). The analysis of proposed aircraft operations is limited to operations that occur within the lowest 3,000 feet of the atmosphere, as this is the typical depth of the atmospheric mixing layer where the release of aircraft emissions would affect ground-level pollutant concentrations.

Emissions from AGE were estimated based on the methodology recommended in the *Air Emissions Guide for Air Force Mobile Sources* (AFCEC 2013). Emissions from POVs were estimated based on total personnel for the existing and proposed scenarios, using emission factors for vehicles from this emissions guide.

Table 6 summarizes the annual operational emissions that would result from KC-46A operations at the 108 WG installation. Table 6 also presents the net emissions increase associated with the beddown of the KC-46A aircraft at JB MDL. As shown in Table 6, the net emissions increases

are below the *de minimis* thresholds for all pollutants except NO<sub>x</sub>. Emissions of NO<sub>x</sub> would exceed the *de minimis* threshold, and this alternative would therefore require a Conformity Determination under the General Conformity Rule.

**Table 6. Comparison of Baseline and Proposed Annual Operational Emissions,  
108 WG Installation**

<i>Baseline</i>	ANNUAL EMISSIONS, TONS/YEAR			
	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
KC-135 Aircraft Operations	3.21	49.03	83.34	0.39
AGE	0.01	0.01	0.09	0.00
Engine Tests	0.14	2.01	0.55	0.01
POVs	5.12	110.72	5.20	0.12
<b>Total</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>0.53</b>
<i>Proposed Action</i>	<i>VOC</i>	<i>CO</i>	<i>NO<sub>x</sub></i>	<i>PM<sub>2.5</sub></i>
KC-46A Aircraft Operations	26.19	100.37	294.03	0.96
AGE	0.01	0.02	0.17	0.01
Engine Tests	1.53	5.23	1.38	0.01
POVs	4.75	126.34	3.97	0.12
<b>Total</b>	<b>32.48</b>	<b>231.97</b>	<b>299.54</b>	<b>1.11</b>
<b>Net Increase</b>	<b>24.01</b>	<b>70.19</b>	<b>210.36</b>	<b>0.58</b>
<b><i>De minimis</i> Threshold</b>	<b>100</b>	<b>100</b>	<b>100</b>	<b>100</b>

Notes: Numbers may not add precisely due to rounding.

CO = carbon monoxide; CO<sub>2</sub>e = carbon dioxide equivalent; NO<sub>x</sub> = oxides of nitrogen; PM<sub>10</sub> = particulate matter less than or equal to 10 microns in diameter; PM<sub>2.5</sub> = particulate matter less than or equal to 2.5 microns in diameter; SO<sub>2</sub> = sulfur dioxide; VOC = volatile organic compound; AGE = aerospace ground equipment; POV = privately-owned vehicle.

#### 4.4 APPLICABILITY OF GENERAL CONFORMITY TO THIS FEDERAL ACTION

The applicability of the General Conformity requirements to Alternative #2 was determined by comparing the federal action emissions to the conformity *de minimis* thresholds for all nonattainment and maintenance pollutants in the Philadelphia-Wilmington-Atlantic City area of the states of Pennsylvania, Delaware, and New Jersey. As shown in Table 5, construction emissions are below the applicable *de minimis* thresholds for all nonattainment and maintenance pollutants. As shown in Table 6, the net operational emissions increase of all pollutants, except for NO<sub>x</sub>, are below the applicable *de minimis* thresholds. Consequently, a conformity determination is only needed for NO<sub>x</sub>, as the estimated annual NO<sub>x</sub> emissions are projected to exceed the applicable 100 tpy *de minimis* threshold for that pollutant. This increase in NO<sub>x</sub> emissions is primarily due to increases in aircraft operations related to training activities. Therefore, the NGB must make a positive conformity determination for NO<sub>x</sub> using one of the criteria under 40 CFR § 93.158 should Alternative #2 be selected.

#### 4.5 GENERAL CONFORMITY DETERMINATION

In accordance with 40 CFR Part 93, Subpart B and the 2010 Air Force Conformity Guide, the incremental increase in emissions above the existing conditions due to Alternative #2 was considered and includes reasonable foreseeable direct and indirect emissions. The applicability

analysis has found that this federal action is subject to general conformity, so the federal agency must demonstrate conformity to the SIP.

### ***SIP Baseline Emissions***

Based on the evaluation of the emissions associated with the implementation of Alternative #2, the estimated annual net increase in NO<sub>x</sub> emissions from operations would equal 210.36 tpy. Therefore, a positive conformity determination is required. To demonstrate positive conformity, the NGB has reviewed the emissions budget in the applicable SIP.

The emission budget for NO<sub>x</sub> from the currently approved SIP for McGuire Air Force Base (AFB) is 1,534 tpy (NJDEP 2007). The USAF has calculated actual emissions for calendar year 2011 from McGuire AFB based on current operations using the Emissions and Dispersion Modeling System (EDMS) software (Federal Aviation Administration [FAA] 2013). Table 7 presents the actual emissions for 2011 in comparison with the SIP emissions budget.

**Table 7. Comparison of Baseline Actual Emissions and McGuire AFB SIP Budget**

<i>Emission Source</i>	ANNUAL EMISSIONS, TONS/YEAR
	<i>NO<sub>x</sub></i>
McGuire Stationary Sources (Title V), CY2011	23.24
Air Operations (Based and Transient Aircraft, CY2011)	959.4
Non-road Vehicles (2005)	92.65
Other point sources	7.6
Capital Improvements Plan, annual	10.29
<b>Total</b>	<b>1093.2</b>
<b>McGuire SIP Budget</b>	<b>1534.0</b>
<b>Remaining Emissions Budget</b>	<b>440.8</b>

As shown in Table 7, the amount of NO<sub>x</sub> emissions accounted for in the SIP emissions budget for McGuire AFB exceeds the actual emissions by 440.8 tpy; thus, the net emissions increase (210.36 tpy) that would be associated with Alternative #2 is accommodated within the existing SIP budget by 230.44 tpy. The net NO<sub>x</sub> emissions from the USAF action would therefore not exceed the emissions budgets in the applicable SIP, and Alternative #2 would conform to the SIP.

JB MDL and the U.S. Army Corps of Engineers have entered into a Memorandum of Agreement that would allow temporary use of a portion of the NO<sub>x</sub> SIP emissions budget for calendar years 2014 through 2016 to allow the Corps to proceed with construction projects to repair, restore, and fortify the coastline in the state of New Jersey in response to damage during Hurricane Sandy (JBMDL-U.S. Army Corps of Engineers 2013). The Corps projects will be completed prior to implementation of Alternative 2 at JB MDL, should this alternative be selected; therefore, the temporary use of NO<sub>x</sub> emissions within the SIP would be complete by the time the emissions associated with Alternative 2 would occur, which is scheduled to commence in 2018.

## **Conclusion**

Based on the evaluation of the emissions associated with the implementation of Alternative #2, the estimated annual net increase in NO<sub>x</sub> emissions from operations would be 210.36 tpy. Therefore, a conformity determination was conducted, and it was found that the emissions increase in NO<sub>x</sub> associated with Alternative #2 is accounted for in the currently approved SIP emissions budget. Accordingly, should Alternative #2 be selected, it would conform to the currently approved SIP.

## **5.0 FINDING OF CONFORMITY**

The USAF has reviewed and evaluated the conformity applicability analysis and documentation, and it has determined that a draft positive general conformity may be made based on the identification and accounting for the emissions within the McGuire AFB emissions budget in the SIP per 40 CFR § 93.158(a)(5)(i)(A). The NGB has provided an opportunity for regulating agencies and the public to comment on the Draft Conformity Determination.

A copy of the Draft Conformity Determination was made available for a 30-day public and agency review. Regulatory agency and public comments provided on the Draft Conformity Determination will be reviewed and addressed appropriately in the Final Conformity Determination. All comments received on the Draft Conformity Determination will be included in the Final Conformity Determination.

## **6.0 LIST OF PREPARERS AND CONTRIBUTORS**

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40 CFR § 93.153. Title 40: Protection of Environment. Part 93 - Determining Conformity of Federal Actions to State or Federal Implementation Plans. Subpart B – Determining Conformity of General Federal Actions to State or Federal Implementation Plans.

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Northeast Regional Climate Center. 2013. Climate Data for Burlington, New Jersey.

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## **APPENDIX A**

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### ***Emission Calculations***



Table A-1 Engine Emission Factors by Throttle Setting - KC-135 and KC-46A Aircraft

Engine Type/Throttle Setting	Fuel Flow (Pounds/Hour)	Emission Factors, lbs/1000 lbs fuel								
		VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
F-108-CF-100 (2)										
Idle	1013.76	2.1045	30.7	4	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Approach	2463.12	0.092	4.2	8.2	1.06	0.06	0.06	3216	8.90E-02	1.00E-01
Intermediate	6486.48	0.0575	0.09	16	1.06	0.05	0.05	3216	8.90E-02	1.00E-01
Military	7801.2	0.046	0.09	18.5	1.06	0.07	0.07	3216	8.90E-02	1.00E-01
P&W 4062 (3)										
Idle	1663.2	12.489	42.61	3.78	1.06	0.11	0.1	3216	8.90E-02	1.00E-01
Approach	5702.4	0.1035	1.93	12.17	1.06	0.05	0.04	3216	8.90E-02	1.00E-01
Climbout	16869.6	0.0805	0.5	25.98	1.06	0.07	0.06	3216	8.90E-02	1.00E-01
Take-Off	21621.6	0.092	0.61	34.36	1.06	0.08	0.07	3216	8.90E-02	1.00E-01
		Emissions, Pounds/Hour								
APU Use - P&W 4062		0.04	0.33	6.72	0.56	0.05	0.04	1373		

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013).

(3) ICAO Engine Exhaust Emissions Data Bank - Subsonic Engines - (ICAO 2013).

Table A-2. HAP Emission Factors - KC-135 and KC-46A Aircraft

Engine Type	Emission Factor (lb/1000 lb fuel) (1)													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
<i>F108-CF-100</i>														
Idle	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.50E-02	0.00E+00	0.00E+00	0.00E+00	3.22E-03	6.23E-03	5.53E-04	1.61E-03	0.00E+00	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	5.58E-03	0.00E+00	0.00E+00	0.00E+00	4.25E-04	1.42E-03	0.00E+00	5.42E-04	0.00E+00	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03
<i>P&amp;W 4062 (3)</i>														
Idle	1.78E+00	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03
Approach	1.48E-02	5.13E-03	2.94E-03	6.50E-04	2.02E-03	7.71E-04	2.09E-04	3.39E-04	3.71E-04	1.85E-03	8.63E-04	7.63E-04	4.46E-02	3.81E-03
Intermediate	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03
Military	1.31E-02	4.56E-03	2.61E-03	5.78E-04	1.79E-03	6.85E-04	1.86E-04	3.01E-04	3.30E-04	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03

Notes: (1) Data are for one engine. The KC-135R has 4 engines and the KC-46A has 2 engines.

(2) Data from *Air Emissions Factor Guide to Air Force Mobile Sources* (AFCEC 2013), Table 2-9.

Table A-3. Land and Take-off/Touch and Go Times in Mode and Fuel Usages - KC-135 and KC-46A Aircraft

Aircraft/Mode (Engine Throttle Setting)	LTO			Touch & Go	
	Time in Mode (TIM)		Fuel Usage	TIM	Fuel Usage
	Minutes	Hours	Pounds	Hours	Pounds
<i>KC-135 (2)</i>					
Taxi Out (Idle)	32.8	0.55	2217		
Take-off (Military)	0.7	0.01	364	0.01	364
Climbout (Intermediate)	2.5	0.04	1081	0.04	1081
Approach	5.2	0.09	854	0.09	854
Taxi In (Idle)	14.9	0.25	1007		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5523</b>	<b>0.14</b>	<b>2299</b>
<i>KC-46A (2)</i>					
Taxi Out (Idle)	32.8	0.55	1818		
Take-off (Military)	0.7	0.01	505	0.01	505
Climbout (Intermediate)	2.5	0.04	1406	0.04	1406
Approach	5.2	0.09	988	0.09	988
Taxi In (Idle)	14.9	0.25	826		
<b>Totals</b>	<b>56.1</b>	<b>0.94</b>	<b>5543</b>	<b>0.14</b>	<b>2899</b>
<i>APU Use, KC-46A (3)</i>		Hours			
Pre-Flight - OBIGGS + Electric + Max ECS		1.50			
Pre-Flight - Main Engine Start + Electric		0.03			
Post-Flight - Electric + Min ECS		0.58			
<b>Total Hours per LTO</b>		<b>2.12</b>			

Notes: (1) Fuel usage per aircraft.

(2) TIM Data from Table 2-4, Transport Aircraft (AFCEC 2013).

(3) APU use from FTU/MOB1 Draft EIS.

Table A-4. Land and Take-off/Touch and Go Total Fuel Usages and Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)								
	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours										
<i>KC-135 (2)</i>												
Taxi Out (Idle)	32.8	0.55	2217	4.67	68.05	8.87	2.35	0.13	0.13	7129.08	0.20	0.22
Take-off (Military)	0.7	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.5	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.2	0.09	954	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Taxi In (Idle)	14.9	0.25	1007	2.12	30.91	4.03	1.07	0.06	0.06	3238.52	0.09	0.10
Totals	56.1	0.935	5523	6.94	102.69	43.93	5.85	0.32	0.32	17761.24	0.49	0.55
<i>KC-46A (2)</i>												
Taxi Out (Idle)	32.8	0.55	1818	22.71	77.48	6.87	1.93	0.20	0.18	5848.08	0.16	0.18
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Taxi In (Idle)	14.9	0.25	826	10.32	35.20	3.12	0.88	0.09	0.08	2656.60	0.07	0.08
Totals	56.1	0.935	5543	33.29	115.60	75.88	5.88	0.48	0.42	17826.96	0.49	0.55

Aircraft/Mode	Touch and Go			Emissions (Pounds)								
	Time in Mode (TIM)		Fuel Usage	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
	Minutes	Hours										
<i>KC-135 (2)</i>												
Take-off (Military)	0.70	0.01	364	0.02	0.03	6.74	0.39	0.03	0.03	1170.80	0.03	0.04
Climbout (Intermediate)	2.50	0.04	1081	0.06	0.10	17.30	1.15	0.05	0.05	3476.75	0.10	0.11
Approach	5.20	0.09	854	0.08	3.59	7.00	0.91	0.05	0.05	2746.08	0.08	0.09
Totals	8.40	0.14	2299	0.16	3.72	31.03	2.44	0.13	0.13	7393.64	0.20	0.23
<i>KC-46A (2)</i>												
Take-off (Military)	0.7	0.01	505	0.05	0.31	17.33	0.53	0.04	0.04	1622.48	0.04	0.05
Climbout (Intermediate)	2.5	0.04	1406	0.11	0.70	36.52	1.49	0.10	0.08	4521.05	0.13	0.14
Approach	5.2	0.09	988	0.10	1.91	12.03	1.05	0.05	0.04	3178.75	0.09	0.10
Totals	8.40	0.14	2899	0.26	2.92	65.89	3.07	0.19	0.16	9322.28	0.26	0.29

Table A-5. Land and Take-off/Touch and Go Total Fuel Usages and HAP Emissions - KC-135 and KC-46A Aircraft

Aircraft/Mode	LTO			Emissions (Pounds)													
LTOs	Time in Mode (TIM)		Fuel Usage	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Taxi Out (Idle)	32.8	0.55	2217	0.21	0.00	0.00	0.01	0.00	0.02	0.00	0.00	0.00	0.01	0.00	0.00	0.15	0.01
Take-off (Military)	0.7	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.2	0.09	854	0.01	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	1007	0.10	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Totals	56.1	0.94	5523	0.33	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.00	0.01	0.00	0.00	0.31	0.02
KC-46A (2)																	
Taxi Out (Idle)	32.8	0.55	1818	3.24	1.13	0.65	0.14	0.44	0.17	0.05	0.07	0.08	0.01	0.00	0.00	0.12	0.01
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Taxi In (Idle)	14.9	0.25	826	1.47	0.51	0.29	0.06	0.20	0.08	0.02	0.03	0.04	0.00	0.00	0.00	0.06	0.00
Totals	56.1	0.94	5543	4.75	1.65	0.95	0.21	0.65	0.25	0.07	0.11	0.12	0.01	0.00	0.00	0.29	0.02

Aircraft/Mode	Touch and Go			Emissions (Pounds)													
Touch and Go	Time in Mode (TIM)		Fuel Usage	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
	Minutes	Hours	Pounds														
KC-135 (2)																	
Take-off (Military)	0.70	0.01	364	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.50	0.04	1081	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.05	0.00
Approach	5.20	0.09	854	0.01	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2299	0.02	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.09	0.01
KC-46A (2)																	
Take-off (Military)	0.7	0.01	505	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Climbout (Intermediate)	2.5	0.04	1406	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.07	0.00
Approach	5.2	0.09	988	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.04	0.00
Totals	8.40	0.14	2899	0.04	0.01	0.01	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.12	0.01

Table A-6. Annual Air Operations for Aircraft at McGuire - Baseline

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-135	834	3336	8340

Table A-7. KC-135 Aircraft Closed Pattern Operations at McGuire, Baseline

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)									
	Fraction of Ops	Total Ops per Pattern	48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0
CR01 IFR to RWY06 on South Side	0.0530	177	2.1406		8.5008		0.1362	2.0365	1.5710		0.7596	0.4919
CR02 TACAN RWY06 VFR Circle	0.0035	12	0.6319	0.8571	7.1268		0.1362	2.9128	1.5710		0.7596	0.4919
CR03 North Radar Track	0.0141	47	2.1406		5.0742		0.1362	1.6240	1.5710		0.7596	0.4919
CR04 Radar Track on 18C3	0.0059	20	2.1406		8.2663		0.1362	2.1209	1.5710		0.7596	0.4919
CR05 Radar Track on 18C4	0.0059	20	2.1406		6.8000		0.0681	2.1209	1.5710		0.7596	0.5567
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.0919	307	2.1406		7.4803		0.1362	2.1209	1.5712		0.7594	0.4919
CR07 Radar Track 150HDG for Crosswind	0.0141	47	2.1406		7.6444		0.1362	2.1209	1.5710		0.7596	0.4919
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.0071	24	0.6319	1.0058	7.2052	1.6424	0.1362	2.1650	1.5710		0.7596	0.4919
CR09 Radar track to North	0.0283	94	2.1406		6.5939		0.1362	3.9770	1.5710		0.7596	0.4919
CR10 Radar track on 36C3	0.0059	20	2.1406		7.3686		0.1362		3.6919		0.7596	0.4919
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.0059	20	0.6948	0.8238	7.2755	1.9866	0.1362	1.2953	1.5710		0.7596	0.4919
CV01 - North VFR	0.2122	708	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV02 - West VFR on 18C2	0.0353	118	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV03 - North VFR Inside Housing	0.0382	127	0.7645	1.1669	0.7397	0.7516	0.1362		0.7571		0.3668	0.4919
CV04 - North VFR Outside Housing	0.3775	1259	0.7645	1.1669	0.9721	1.5196	0.0681		0.7571		0.3668	0.5567
CV05 - VFR With Breakout	0.0657	219	0.7645	1.1670	0.6680		0.1362	0.6419	0.7571	2.9350	0.3668	0.4919
CV06 - West VFR on 36C2	0.0353	118	0.7645	1.1669	0.7397	0.8613	0.1362		0.7571		0.3668	0.4919
Total Ops		3336										

Table A-8. KC-135 Aircraft Closed Pattern Operations - Fuel Use and Emission Factors, Baseline

Factor				Engine Setting/Time in Mode per Operation (Minutes)									
				48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0
Fuel Use, lbs/hr				17295.696	18905.04	19910.88	20916.72	21319.056	21922.56	22123.728	22928.4	26274.6	29232.72
Emission Factors, lbs/1000 lbs fuel													
VOC				0.0760	0.0726	0.0704	0.0683	0.0674	0.0661	0.0657	0.0640	0.0568	0.0503
CO				2.2991	1.8881	1.6313	1.3744	1.2716	1.1175	1.0661	0.8606	0.0900	0.0900
NOx				11.8075	12.5875	13.0750	13.5625	13.7575	14.0500	14.1475	14.5375	16.1563	17.5625
SO2				1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600
PM10				0.0554	0.0544	0.0538	0.0531	0.0529	0.0525	0.0524	0.0519	0.0513	0.0625
PM2.5				0.0554	0.0544	0.0538	0.0531	0.0529	0.0525	0.0524	0.0519	0.0513	0.0625
CO2				3216	3216	3216	3216	3216	3216	3216	3216	3216	3216
CH4				0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890
N2O				0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000

Table A-9. KC-135 Aircraft Closed Pattern Operations - Emissions Per Operation, Baseline

Emissions per operation, lbs	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
CR01 IFR to RWY06 on South Side	0.3671	7.5825	73.0690	5.7050	0.2898	0.2898	17308.8124	0.4790	0.5382
CR02 TACAN RWY06 VFR Circle	0.3427	6.7066	69.8701	5.3864	0.2727	0.2727	16342.0124	0.4523	0.5081
CR03 North Radar Track	0.2770	5.5592	56.0837	4.3399	0.2208	0.2208	13167.1627	0.3644	0.4094
CR04 Radar Track on 18C3	0.3636	7.4901	72.4847	5.6552	0.2872	0.2872	17157.7017	0.4748	0.5335
CR05 Radar Track on 18C4	0.3293	6.6684	66.3436	5.1472	0.2618	0.2618	15616.4405	0.4322	0.4856
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.3453	7.0646	69.0735	5.3787	0.2732	0.2732	16318.7065	0.4516	0.5074
CR07 Radar Track 150HDG for Crosswind	0.3491	7.1534	69.7860	5.4364	0.2761	0.2761	16493.9067	0.4565	0.5129
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.3689	7.3190	74.7264	5.7809	0.2927	0.2927	17538.9678	0.4854	0.5454
CR09 Radar track to North	0.3694	7.3426	74.7566	5.7858	0.2930	0.2930	17553.8740	0.4858	0.5458
CR10 Radar track on 36C3	0.3428	6.9719	68.7658	5.3470	0.2715	0.2715	16222.5155	0.4489	0.5044
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.3550	7.1003	71.6865	5.5544	0.2815	0.2815	16851.8535	0.4664	0.5240
CV01 - North VFR	0.1240	2.4040	25.9387	1.9732	0.1017	0.1017	5986.4890	0.1657	0.1861
CV02 - West VFR on 18C2	0.1240	2.4040	25.9387	1.9732	0.1017	0.1017	5986.4890	0.1657	0.1861
CV03 - North VFR Inside Housing	0.1214	2.3566	25.4126	1.9328	0.0997	0.0997	5863.9644	0.1623	0.1823
CV04 - North VFR Outside Housing	0.1451	2.8224	30.2732	2.3061	0.1188	0.1188	6996.6470	0.1936	0.2176
CV05 - VFR With Breakout	0.1891	3.1850	41.1481	3.0673	0.1550	0.1550	9306.0728	0.2575	0.2894
CV06 - West VFR on 36C2	0.1240	2.4092	25.9314	1.9733	0.1017	0.1017	5986.9753	0.1657	0.1862

Emissions, closed pattern ops, tons/year

0.3160 6.2145 65.0183 4.9886 0.2551 0.2551 15135.2626 0.4189 0.4706



Table A-10. Annual Air Emissions for KC-135 Aircraft Operations at McGuire - Baseline

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-135 LTOs	2.89	42.82	18.32	2.44	0.14	0.14	7406.44	0.20	0.23
KC-135 T&G	0.32	6.21	65.02	4.99	0.26	0.26	15135.26	0.42	0.47
Total Existing	3.21	49.03	83.34	7.43	0.39	0.39	22541.70	0.62	0.70

Table A-11. Annual HAP Emissions for KC-135 Aircraft Operations at McGuire - Baseline

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-135 LTOs	0.14	0.00	0.00	0.00	0.00	0.02	0.00	0.00	0.00	0.00	0.00	0.00	0.13	0.01
KC-135 Closed Pattern Ops	0.04	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00	0.16	0.01
Total Existing	0.17	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.29	0.02

Table A-12. JP-8 AGE Equipment Emissions, McGuire, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-135 AGE																	
Sorties:	834																
	Hours/Sortie																
Generator AIM32A-86	10	8340.00	6.47	69679.35	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	1.12E+02	8.40E+00	5.41E+00	1.67E+00	1.64E+00	8.46E-01
Start Cart AIM32A-60A	1	834.00	10.16	8474.52	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	3.35E+00	1.01E+01	4.96E-01	3.88E-01	3.77E-01	1.32E-01
Start Cart AIM32A-95	0.1	83.40	8.75	729.75	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	2.70E-01	1.08E+00	1.29E-01	2.02E-02	1.97E-02	1.14E-02
Heater/AC Ace 802-993 AC	10	8340.00	6.80	128059.35	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	5.40E+01	2.76E+00	3.75E+00	3.64E+00	3.53E+00	8.83E-01
MA-3C Air Conditioner	2	1668.00	7.12	11299.35	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	1.53E+01	1.17E+00	1.95E-01	4.01E-01	3.86E-01	1.84E-01
H1	5	4170.00	0.39	1530.12	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.45E+00	1.66E+00	9.19E-01	1.00E+00	1.00E+00	2.76E-02
1H1	4	3336.00	0.39	1224.10	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	1.16E+00	1.33E+00	7.35E-01	8.02E-01	8.02E-01	2.21E-02
Light Cart NF-2	2	1668.00	1.02	1694.90	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	4.05E-01	2.94E-01	3.68E-02	3.68E-02	3.68E-02	2.64E-02
Air Compressor MC-1A	0.33	275.22	1.09	285.87	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	2.54E-01	1.62E-01	1.62E-01	4.31E-02	4.13E-02	4.85E-03
Total JP-8 AGE, Tons/year				hp-hrs	3949884.048							9.42E-02	1.35E-02	5.92E-03	4.00E-03	3.92E-03	1.07E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table A-13. AGE HAP Emissions, McGuire, Baseline

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	2.13E+01	7.00E-02	
Acrolein		6.48E-04	2.56E+00		
Benzene	7.65E-03	6.50E-03	2.57E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.08E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	3.28E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	2.35E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	4.74E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	1.15E+01		
Xylenes		2.00E-03	7.90E+00		
Total			9.68E-03		

Table A-14. JP-8 AGE Equipment GHG Emissions, McGuire, Baseline

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-135 AGE											
Sorties:	834										
	Hours/Sortie										
Generator AIM32A-86	10	8340.00	6.47	69679.35	148	2.11E+01	5.91E-04	6.80E-04	1.47E+06	4.12E+01	4.74E+01
Start Cart AIM32A-60A	1	834.00	10.16	8474.52	180	2.11E+01	5.91E-04	6.80E-04	1.79E+05	5.01E+00	5.76E+00
Start Cart AIM32A-95	0.1	83.40	8.75	729.75	155	2.11E+01	5.91E-04	6.80E-04	1.54E+04	4.31E-01	4.96E-01
Heater/AC Ace 802-993 AC	10	8340.00	6.80	128059.35	272	2.11E+01	5.91E-04	6.80E-04	2.70E+06	7.57E+01	8.71E+01
MA-3C Air Conditioner	2	1668.00	7.12	11299.35	120	2.11E+01	5.91E-04	6.80E-04	2.38E+05	6.68E+00	7.68E+00
H1	5	4170.00	0.39	1530.12	6.5	2.11E+01	5.91E-04	6.80E-04	3.23E+04	9.04E-01	1.04E+00
1H1	4	3336.00	0.39	1224.10	6.5	2.11E+01	5.91E-04	6.80E-04	2.58E+04	7.23E-01	8.32E-01
Light Cart NF-2	2	1668.00	1.02	1694.90	18	2.11E+01	5.91E-04	6.80E-04	3.58E+04	1.00E+00	1.15E+00
Air Compressor MC-1A	0.33	275.22	1.09	285.87	18.4	2.11E+01	5.91E-04	6.80E-04	6.03E+03	1.69E-01	1.94E-01
Total JP-8 AGE, Metric Tons/year									2.13E+03	5.98E-02	6.88E-02

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table A-15. Aircraft Engine Emissions - Engine Tests, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-135																	
Defueling	21	Idle	0.50	1	1,014	2.1	30.7	4.0	1.1	0.1	0.1	22.40	326.79	42.58	11.28	1.30	1.30
Maintenance Run	83	Idle	0.33	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	236.10	3,444.22	448.76	118.92	13.67	13.67
TRT Run 2 Engine	10	Idle	0.17	2	1,014	2.1	30.7	4.0	1.1	0.1	0.1	7.11	103.74	13.52	3.58	0.41	0.41
	10	80% RPM	0.08	2	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.60	1.17	240.54	13.78	1.43	1.43
TRT Run 4 Engine	7	Idle	0.17	4	1,014	2.1	30.7	4.0	1.1	0.1	0.1	9.96	145.24	18.92	5.01	0.58	0.58
	7	80% RPM	0.08	4	7801.2	0.0	0.1	18.5	1.1	0.1	0.1	0.84	1.64	336.75	19.29	2.00	2.00
												0.14	2.01	0.55	0.09	0.01	0.01

Table A-16. HAP Emissions, Engine Tests, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)															
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate		
KC-135																					
Defueling	21	Idle	0.50	1	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
Maintenance Run	83	Idle	0.33	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
TRT Run 2 Engine	10	Idle	0.17	2	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
	10	80% RPM	0.08	2	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03		
TRT Run 4 Engine	7	Idle	0.17	4	1,014	9.51E-02	0.00E+00	0.00E+00	2.90E-03	1.90E-03	8.97E-03	6.84E-04	1.65E-03	1.48E-03	2.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03		
	7	80% RPM	0.08	4	7801.2	7.01E-03	0.00E+00	0.00E+00	0.00E+00	1.11E-03	1.11E-03	0.00E+00	3.36E-04	0.00E+00	1.18E-03	3.37E-04	4.84E-04	1.96E-03	2.42E-03		
						Emissions, lbs/yr														Total HAPs, TPY	
						Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate		
						1.01	0.00	0.00	0.03	0.02	0.10	0.01	0.02	0.02	0.02	0.01	0.01	0.72	0.05		
						10.67	0.00	0.00	0.33	0.21	1.01	0.08	0.19	0.17	0.26	0.10	0.11	7.57	0.54		
						0.32	0.00	0.00	0.01	0.01	0.03	0.00	0.01	0.01	0.01	0.00	0.00	0.23	0.02		
						0.09	0.00	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.02	0.00	0.01	0.03	0.03		
						0.45	0.00	0.00	0.01	0.01	0.04	0.00	0.01	0.01	0.01	0.00	0.00	0.32	0.02		
						0.13	0.00	0.00	0.00	0.02	0.02	0.00	0.01	0.00	0.02	0.01	0.01	0.04	0.04		
						0.00633576	0	0	0.000189869	0.00014172	0.0006046	4.4783E-05	0.00011327	9.6899E-05	0.000169651	6.50339E-05	7.09285E-05	0.00444994	0.0003553		0.01263775

Table A-17. GHG Emissions, Engine Tests, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)			
KC-135											
Defueling	21	Idle	0.50	1	1,014	3,216.0	0.1	0.1	34,232.65	0.95	1.06
Maintenance Run	83	Idle	0.33	4	1,014	3,216.0	0.1	0.1	360,801.24	9.98	11.22
TRT Run 2 Engine	10	Idle	0.17	2	1,014	3,216.0	0.1	0.1	10,867.51	0.30	0.34
	10	80% RPM	0.08	2	7801.2	3,216.0	0.1	0.1	41,814.43	1.16	1.30
TRT Run 4 Engine	7	Idle	0.17	4	1,014	3,216.0	0.1	0.1	15,214.51	0.42	0.47
	7	80% RPM	0.08	4	7801.2	3,216.0	0.1	0.1	58,540.20	1.62	1.82
<b>Total, tpy</b>									<b>237</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table A-18. Annual Worker Population and VMT at McGuire - KC-46A Project Scenarios

Scenario	Total # of Workers	Annual On-Base VMT	Annual Off-Base VMT
Existing	1051	273260	4560709.4
Proposed Action	1306	339560	5667256.4

<sup>1</sup> On-Base mileage based on 1.00 miles from 2009 AEI; assume 260 days/year<sup>2</sup> Off-Base mileage based on distance to downtown Burlington, 16.69 miles; assume 260 days/year

Table A-19. Annual Average On-Road Vehicle Emission Factors - McGuire

Scenario/Vehicle Class	Emission Factors (Grams/Mile)							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	0.587	9.65	0.442	0.007	0.025	0.011	368.1
LDDT	0.03	0.132	0.808	0.2	0.003	0.053	0.037	314
LDGT	60.32	0.826	11.45	0.694	0.01	0.025	0.011	516.1
LDDT	0.2	0.393	0.708	0.46	0.006	0.06	0.044	599.2
HDGV	0	1.081	28	1.201	0.017	0.049	0.032	905.3
HDDV	0	0.684	2.315	3.359	0.012	0.129	0.1	1245.6
MC	1.9	2.9	27.28	0.85	0.003	0.037	0.021	177.4
Proposed Action (Year 2018) (1)								
LDGV	37.55	0.446	8.78	0.316	0.007	0.025	0.011	368
LDDT	0.03	0.087	0.692	0.088	0.003	0.038	0.023	314.1
LDGT	60.32	0.664	10	0.521	0.01	0.025	0.011	516.6
LDDT	0.2	0.305	0.6	0.317	0.006	0.047	0.032	598.6
HDGV	0	0.784	26.32	0.677	0.017	0.04	0.025	904
HDDV	0	0.583	1.428	1.919	0.012	0.078	0.053	1245.9
MC	1.9	2.9	27.28	0.85	0.003	0.037	0.021	177.4

Notes: (1) Emission factors from AFCEC 2013, Table 5-13, for 2017 used to provide a conservative estimate of emissions for 2018

Table A-20. Annual Average On-Base Vehicle Emissions

Scenario/Vehicle Class	Emissions, lbs/year							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	132.79	2182.98	99.99	1.58	5.66	2.49	83269.96
LDDT	0.03	0.02	0.15	0.04	0.00	0.01	0.01	56.75
LDGT	60.32	300.16	4160.82	252.19	3.63	9.08	4.00	187545.99
LDDT	0.2	0.47	0.85	0.55	0.01	0.07	0.05	721.96
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	33.19	312.26	9.73	0.03	0.42	0.24	2030.58
Total Existing, tons/year		0.23	3.33	0.18	0.00	0.01	0.00	136.81
Proposed Action (Year 2018) (1)								
LDGV	37.55	125.37	2468.07	88.83	1.97	7.03	3.09	103445.31
LDDT	0.03	0.02	0.16	0.02	0.00	0.01	0.01	70.54
LDGT	60.32	299.84	4515.59	235.26	4.52	11.29	4.97	233275.32
LDDT	0.2	0.46	0.90	0.47	0.01	0.07	0.05	896.23
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	41.25	388.02	12.09	0.04	0.53	0.30	2523.25
Total Proposed Action, tons/year		0.23	3.69	0.17	0.00	0.01	0.00	170.11

Table A-21. Annual Average Off-Base Vehicle Emissions

Scenario/Vehicle Class	Emissions, lbs/year							
	POV Mix (%)	VOC	CO	NOx	SO2	PM10	PM2.5	CO2
Existing (Year 2013)								
LDGV	37.55	3118.59	43229.91	2620.22	37.76	94.39	41.53	1948555.27
LDDT	0.03	1.19	2.14	1.39	0.02	0.18	0.13	1807.43
LDGT	60.32	6556.26	169819.79	7284.06	103.10	297.18	194.08	5490637.63
LDDT	0.2	13.75	46.55	67.55	0.24	2.59	2.01	25048.26
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	85.20	1677.32	60.37	1.34	4.78	2.10	70302.43
Total Existing, tons/year		4.89	107.39	5.02	0.07	0.20	0.12	3768.18
Proposed Action (Year 2018) (1)								
LDGV	37.55	3115.21	46915.82	2444.31	46.92	117.29	51.61	2423671.37
LDDT	0.03	1.14	2.25	1.19	0.02	0.18	0.12	2243.71
LDGT	60.32	5908.63	198361.15	5102.22	128.12	301.46	188.41	6813011.99
LDDT	0.2	14.57	35.68	47.95	0.30	1.95	1.32	31133.11
HDGV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
HDDV	0	0.00	0.00	0.00	0.00	0.00	0.00	0.00
MC	1.9	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Proposed Action, tons/year		4.52	122.66	3.80	0.09	0.21	0.12	4635.03

Table A-22. Annual Air Operations for Aircraft at McGuire - Proposed Action

Aircraft	Number of Operations		
	LTO	TGO	Total
KC-46A	1508	7296	17608

Table A-23. KC-46A Aircraft Closed Pattern Operations at McGuire - KC-46A Proposed Scenarios

Scenario/Operation	Operations/Year		Engine Setting/Time in Mode per Operation (Minutes)									
	Fraction of Ops	Total Ops per Pattern	48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0
CR01 IFR to RWY06 on South Side	0.0559	408	2.1406		8.5008		0.1362	2.0365	1.5710		0.7596	0.4919
CR02 TACAN RWY06 VFR Circle	0.0037	27	0.6319	0.8571	7.1268		0.1362	2.9128	1.5710		0.7596	0.4919
CR03 North Radar Track	0.0150	110	2.1406		5.0742		0.1362	1.6240	1.5710		0.7596	0.4919
CR04 Radar Track on 18C3	0.0063	46	2.1406		8.2663		0.1362	2.1209	1.5710		0.7596	0.4919
CR05 Radar Track on 18C4	0.0063	46	2.1406		6.8000		0.0681	2.1209	1.5710		0.7596	0.5567
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.0792	578	2.1406		7.4803		0.1362	2.1209	1.5712		0.7594	0.4919
CR07 Radar Track 150HDG for Crosswind	0.0150	110	2.1406		7.6444		0.1362	2.1209	1.5710		0.7596	0.4919
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.0075	55	0.6319	1.0058	7.2052	1.6424	0.1362	2.1650	1.5710		0.7596	0.4919
CR09 Radar track to North	0.0300	219	2.1406		6.5939		0.1362	3.9770	1.5710		0.7596	0.4919
CR10 Radar track on 36C3	0.0063	46	2.1406		7.3686		0.1362		3.6919		0.7596	0.4919
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.0063	46	0.6948	0.8238	7.2755	1.9866	0.1362	1.2953	1.5710		0.7596	0.4919
CV01 - North VFR	0.2135	1557	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV02 - West VFR on 18C2	0.0425	310	0.7645	1.1669	0.6817	0.9162	0.1362		0.7571		0.3668	0.4919
CV03 - North VFR Inside Housing	0.0502	366	0.7645	1.1669	0.7397	0.7516	0.1362		0.7571		0.3668	0.4919
CV04 - North VFR Outside Housing	0.3860	2816	0.7645	1.1669	0.9721	1.5196	0.0681		0.7571		0.3668	0.5567
CV05 - VFR With Breakout	0.0090	66	0.7645	1.1670	0.6680		0.1362	0.6419	0.7571	2.9350	0.3668	0.4919
CV06 - West VFR on 36C2	0.0675	493	0.7645	1.1669	0.7397	0.8613	0.1362		0.7571		0.3668	0.4919
Total Ops		7296										

Table A-24. KC-46A Aircraft Closed Pattern Operations - Fuel Use and Emission Factors

Factor	Engine Setting/Time in Mode per Operation (Minutes)											
	48.5	52.5	55.0	57.5	58.5	60.0	60.5	62.5	70.5	75.0		
Fuel Use, lbs/hr	19668.32	21455.2	22572	23688.8	24135.52	24805.6	24894.944	25922.4	29496.16	31506.4		
Emission Factors, lbs/1000 lbs fuel												
VOC	0.0950	0.0932	0.0920	0.0909	0.0904	0.0897	0.0896	0.0886	0.0849	0.0828		
CO	1.4009	1.2865	1.2150	1.1435	1.1149	1.0720	1.0663	1.0005	0.7717	0.6430		
NOx	17.2797	18.3845	19.0750	19.7655	20.0417	20.4560	20.5112	21.1465	23.3561	24.5990		
SO2	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600	1.0600		
PM10	0.0574	0.0590	0.0600	0.0610	0.0614	0.0620	0.0621	0.0630	0.0662	0.0680		
PM2.5	0.0474	0.0490	0.0500	0.0510	0.0514	0.0520	0.0521	0.0530	0.0562	0.0580		
CO2	3216	3216	3216	3216	3216	3216	3216	3216	3216	3216		
CH4	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890	0.0890		
N2O	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000	0.1000		

Table A-25. KC-46A Aircraft Closed Pattern Operations - Emissions Per Operation

Emissions per operation, lbs	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
CR01 IFR to RWY06 on South Side	0.5528	6.9815	119.8938	6.4448	0.3705	0.3097	19553.2901	0.5411	0.6080
CR02 TACAN RWY06 VFR Circle	0.5193	6.4433	114.5336	6.0816	0.3516	0.2942	18451.2142	0.5106	0.5737
CR03 North Radar Track	0.4189	5.2325	91.8159	4.8976	0.2826	0.2364	14859.1404	0.4112	0.4620
CR04 Radar Track on 18C3	0.5478	6.9117	118.9246	6.3883	0.3673	0.3071	19381.7711	0.5364	0.6027
CR05 Radar Track on 18C4	0.4974	6.2328	108.6896	5.8105	0.3349	0.2801	17628.9690	0.4879	0.5482
CR06 Radar Track Continuous turn 150HDG to 90 HDG	0.5206	6.5524	113.2829	6.0748	0.3496	0.2923	18430.6441	0.5101	0.5731
CR07 Radar Track 150HDG for Crosswind	0.5263	6.6274	114.4612	6.1402	0.3533	0.2954	18629.2587	0.5155	0.5793
CR08 TACAN to Rwy 24 then VFR Circle to RWY 18	0.5582	6.9576	122.5660	6.5288	0.3769	0.3153	19808.1470	0.5482	0.6159
CR09 Radar track to North	0.5588	6.9699	122.6205	6.5348	0.3772	0.3155	19826.2219	0.5487	0.6165
CR10 Radar track on 36C3	0.5170	6.4998	112.5958	6.0336	0.3473	0.2904	18305.8273	0.5066	0.5692
CR11 TACAN approach to RWY 36 VFR Circle to RWY 6	0.5366	6.7049	117.5614	6.2726	0.3618	0.3027	19030.9306	0.5267	0.5918
CV01 - North VFR	0.1889	2.3143	42.1492	2.2192	0.1288	0.1079	6732.8662	0.1863	0.2094
CV02 - West VFR on 18C2	0.1889	2.3143	42.1492	2.2192	0.1288	0.1079	6732.8662	0.1863	0.2094
CV03 - North VFR Inside Housing	0.1850	2.2666	41.2817	2.1735	0.1262	0.1057	6594.1730	0.1825	0.2050
CV04 - North VFR Outside Housing	0.2210	2.7109	49.2300	2.5945	0.1505	0.1261	7871.7252	0.2178	0.2448
CV05 - VFR With Breakout	0.2917	3.4477	67.1451	3.4557	0.2028	0.1702	10484.5776	0.2902	0.3260
CV06 - West VFR on 36C2	0.1890	2.3161	42.1379	2.2194	0.1288	0.1079	6733.4865	0.1863	0.2094
Emissions, closed pattern ops, tons/year	1.0238	12.6852	226.0694	11.9930	0.6937	0.5806	36386.3482	1.0070	1.1314

Table A-26. Annual Air Emissions for KC-46A Aircraft Operations at McGuire - Proposed Action

Aircraft	Annual Emissions, Tons/year								
	VOC	CO	NOx	SO2	PM10	PM2.5	CO2	CH4	N2O
KC-46A LTOs	25.10	87.16	57.22	4.43	0.36	0.32	13441.53	0.37	0.42
KC-46A T&G	1.02	12.69	226.07	11.99	0.69	0.58	36386.35	1.01	1.13
APU	0.06	0.53	10.74	0.90	0.08	0.06	2194.71	0.00	0.00
Total Proposed Action	26.19	100.37	294.03	17.32	1.13	0.96	52022.59	1.38	1.55

Table A-27. Annual HAP Emissions for KC-46A Aircraft Operations at McGuire - Proposed Action

Aircraft	Annual Emissions, Tons/year													
	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
KC-46A LTOs	3.58	1.24	0.71	0.16	0.49	0.19	0.05	0.08	0.09	0.01	0.00	0.00	0.22	0.02
KC-46A Closed Pattern Ops	0.14	0.05	0.03	0.01	0.02	0.01	0.00	0.00	0.00	0.02	0.01	0.01	0.42	0.03
Total Proposed Action	3.72	1.29	0.74	0.16	0.51	0.19	0.05	0.09	0.09	0.03	0.01	0.01	0.65	0.05

Table A-28. JP-8 AGE Equipment Emissions, Proposed Action, McGuire

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/hr						Annual Emissions (lbs/yr)					
						NOx	CO	VOC	PM10	PM2.5	SO2	NOx	CO	VOC	PM10	PM2.5	SO2
KC-46A AGE																	
Sorties:	1508																
	Hours/Sortie																
Generator AM32A-86	10	15080.00	6.47	125990.97	148	6.10E+00	4.57E-01	2.94E-01	9.10E-02	8.90E-02	4.60E-02	2.03E+02	1.52E+01	9.77E+00	3.03E+00	2.96E+00	1.53E+00
Start Cart AM32A-60A	1	1508.00	10.16	15323.23	180	1.82E+00	5.48E+00	2.70E-01	2.11E-01	2.05E-01	7.18E-02	6.05E+00	1.82E+01	8.98E-01	7.01E-01	6.82E-01	2.39E-01
Start Cart AM32A-95	0.1	150.80	8.75	1319.50	155	1.47E+00	5.86E+00	7.00E-01	1.10E-01	1.07E-01	6.19E-02	4.89E-01	1.95E+00	2.33E-01	3.66E-02	3.56E-02	2.06E-02
Heater/AC Ace 802-993 AC	10	15080.00	6.80	231550.97	272	2.94E+00	1.50E-01	2.04E-01	1.98E-01	1.92E-01	4.80E-02	9.77E+01	4.99E+00	6.78E+00	6.58E+00	6.38E+00	1.60E+00
MA-3C Air Conditioner	2	3016.00	7.12	20430.97	120	4.17E+00	3.17E-01	5.30E-02	1.09E-01	1.05E-01	5.00E-02	2.77E+01	2.11E+00	3.52E-01	7.25E-01	6.98E-01	3.32E-01
H1	5	7540.00	0.39	2766.69	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.63E+00	3.01E+00	1.66E+00	1.81E+00	1.81E+00	4.99E-02
1H1	4	6032.00	0.39	2213.35	6.5	1.58E-01	1.81E-01	1.00E-01	1.09E-01	1.09E-01	3.00E-03	2.10E+00	2.41E+00	1.33E+00	1.45E+00	1.45E+00	3.99E-02
Light Cart NF-2	2	3016.00	1.02	3064.65	18	1.10E-01	8.00E-02	1.00E-02	1.00E-02	1.00E-02	7.18E-03	7.31E-01	5.32E-01	6.65E-02	6.65E-02	6.65E-02	4.78E-02
Air Compressor MC-1A	0.33	497.64	1.09	516.90	18.4	4.19E-01	2.67E-01	2.67E-01	7.10E-02	6.80E-02	8.00E-03	4.60E-01	2.93E-01	2.93E-01	7.79E-02	7.46E-02	8.78E-03
Total JP-8 AGE, Tons/year				hp-hrs	7141996.576							1.70E-01	2.43E-02	1.07E-02	7.24E-03	7.08E-03	1.93E-03

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.

Table A-29. AGE HAP Emissions, Proposed Action, McGuire

Pollutant	JP-8			Gasoline	
	Emission Factors		Actual Annual Emissions (lbs/yr)	Emission Factor (lb/MMBTU)	Annual Emissions (lbs/yr)
	Turbine (lb/1000 gal)	Reciprocating (lb/1000 hp-hr)			
Arsenic	1.53E-03				
Acetaldehyde		5.40E-03	3.86E+01	7.00E-02	
Acrolein		6.48E-04	4.63E+00		
Benzene	7.65E-03	6.50E-03	4.64E+01		
Beryllium	4.31E-05				
1,3-Butadiene	2.22E-03	2.74E-04	1.96E+00		
Cadmium	6.67E-04				
Chromium	1.53E-03				
Formaldehyde	3.89E-02	8.30E-03	5.93E+01		
Lead	1.95E-03				
Manganese	1.10E-01				
Mercury	1.67E-04				
Naphthalene	4.87E-03	5.94E-04	4.24E+00		
Nickel	6.39E-04				
POM	5.56E-03	1.20E-03	8.57E+00		
Selenium	3.48E-03				
Toluene		2.90E-03	2.07E+01		
Xylenes		2.00E-03	1.43E+01		
Total			1.75E-02		

Table A-30. JP-8 AGE Equipment GHG Emissions, Proposed Action, McGuire

AGE Type	Sorties	Total Run Time (hr/yr)	Fuel Use per Unit (gal/hr)	Fuel Use per Unit (gal/yr)	Engine Rating (hp)	Emission Factors, lbs/gal			Annual Emissions (lbs/yr)		
						CO2	CH4	N2O	CO2	CH4	N2O
KC-46A AGE											
Sorties:	1508										
	Hours/Sortie										
Generator AM32A-86	10	15080.00	6.47	125990.97	148	2.11E+01	5.91E-04	6.80E-04	2.66E+06	7.45E+01	8.57E+01
Start Cart AM32A-60A	1	1508.00	10.16	15323.23	180	2.11E+01	5.91E-04	6.80E-04	3.23E+05	9.06E+00	1.04E+01
Start Cart AM32A-95	0.1	150.80	8.75	1319.50	155	2.11E+01	5.91E-04	6.80E-04	2.78E+04	7.80E-01	8.97E-01
Heater/AC Ace 802-993 AC	10	15080.00	6.80	231550.97	272	2.11E+01	5.91E-04	6.80E-04	4.89E+06	1.37E+02	1.57E+02
MA-3C Air Conditioner	2	3016.00	7.12	20430.97	120	2.11E+01	5.91E-04	6.80E-04	4.31E+05	1.21E+01	1.39E+01
H1	5	7540.00	0.39	2766.69	6.5	2.11E+01	5.91E-04	6.80E-04	5.84E+04	1.64E+00	1.88E+00
1H1	4	6032.00	0.39	2213.35	6.5	2.11E+01	5.91E-04	6.80E-04	4.67E+04	1.31E+00	1.51E+00
Light Cart NF-2	2	3016.00	1.02	3064.65	18	2.11E+01	5.91E-04	6.80E-04	6.47E+04	1.81E+00	2.08E+00
Air Compressor MC-1A	0.33	497.64	1.09	516.90	18.4	2.11E+01	5.91E-04	6.80E-04	1.09E+04	3.05E-01	3.51E-01
Total JP-8 AGE, Metric Tons/year									3.86E+03	1.08E-01	1.24E-01

Emission estimation methodology based AFCEC 2013, assuming Sortie/LTO method per AFCEC guidance.

Equipment from AFCEC 2013, Table 3-3. Emission Factors from AFCEC 2013, Table 3-4.



Table A-31. Aircraft Engine Emissions - Engine Tests, Proposed Action, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factors (lb/1000 lb fuel)						Emissions (lbs/yr)					
						VOC	CO	NOx	SO2	PM10	PM2.5	VOC	CO	NOx	SO2	PM10	PM2.5
KC-46A																	
Defueling	44	Idle	0.50	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	456.98	1,559.12	138.31	38.79	4.02	3.66
Maintenance Run	175	Idle	0.33	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	2,423.37	8,268.04	733.47	205.68	21.34	19.40
TRT Run 1 Engine	20	Idle	0.17	1	1,663	12.5	42.6	3.8	1.1	0.1	0.1	69.24	236.23	20.96	5.88	0.61	0.55
	20	80% RPM	0.08	1	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	2.26	14.06	730.45	29.80	1.97	1.69
TRT Run 2 Engine	15	Idle	0.17	2	1,663	12.5	42.6	3.8	1.1	0.1	0.1	103.86	354.34	31.43	8.81	0.91	0.83
	15	80% RPM	0.08	2	16869.6	0.1	0.5	26.0	1.1	0.1	0.1	3.40	21.09	1,095.68	44.70	2.95	2.53
												1.53	5.23	1.38	0.17	0.02	0.01

Table A-32. HAP Emissions, Engine Tests, Proposed Action, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor (lb/1000 lb fuel) (1)															
						Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate		
KC-46A																					
Defueling	44	Idle	0.50	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
Maintenance Run	175	Idle	0.33	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
TRT Run 2 Engine	20	Idle	0.17	1	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
	20	80% RPM	0.08	1	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03		
TRT Run 4 Engine	15	Idle	0.17	2	1,663	6.19E-01	3.55E-01	7.84E-02	2.44E-01	9.30E-02	2.52E-02	4.09E-02	4.48E-02	3.31E-03	9.13E-04	9.68E-04	6.75E-02	4.85E-03	4.85E-03		
	15	80% RPM	0.08	2	16869.6	1.15E-02	3.99E-03	2.29E-03	5.05E-04	1.57E-03	6.00E-04	1.63E-04	2.63E-04	2.89E-04	1.76E-03	7.94E-04	5.09E-04	5.06E-02	2.54E-03		
						Emissions, lbs/yr														Total HAPs, TPY	
						Form- aldehyde	Acet- aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl- benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3- Dichloropropene	Methylene Chloride	Vinyl Acetate		
						22.64	12.98	2.87	8.91	3.40	0.92	1.50	1.64	0.12	0.03	0.04	2.47	0.18	0.18		
						120.09	68.85	15.21	47.27	18.05	4.90	7.93	8.70	0.64	0.18	0.19	13.10	0.94	0.94		
						3.43	1.97	0.43	1.35	0.52	0.14	0.23	0.25	0.02	0.01	0.01	0.37	0.03	0.03		
						0.32	0.11	0.06	0.01	0.04	0.02	0.00	0.01	0.01	0.05	0.02	0.01	1.42	0.07		
						5.15	2.95	0.65	2.03	0.77	0.21	0.34	0.37	0.03	0.01	0.01	0.56	0.04	0.04		
						0.48	0.17	0.10	0.02	0.07	0.03	0.01	0.01	0.01	0.07	0.03	0.02	2.13	0.11		
						0.07605772	0.04351743	0.00966467	0.029796732	0.01142702	0.00310768	0.00500308	0.00548917	0.00041479	0.000173465	0.000146238	0.00826944	0.00237123	0.00068216		0.19612083

Table A-33. GHG Emissions, Engine Tests, Proposed Action, McGuire

Aircraft/Test Type	Number of Engine Tests	Power Setting	Duration (hrs)	Number of Engines	Fuel Flow Rate per Engine (lbs fuel/hr)	Emission Factor(1)			Actual Emissions (lb/yr)		
						CO2	CH4	N2O			
						(lb/1000 lb fuel)	(lb/1000 lb fuel)	(lb/1000 lb fuel)	CO2	CH4	N2O
KC-46A											
Defueling	44	Idle	0.50	1	1,663	3,216.0	0.1	0.1	117,674.73	3.26	3.66
Maintenance Run	175	Idle	0.33	2	1,663	3,216.0	0.1	0.1	624,032.64	17.27	19.40
TRT Run 2 Engine	20	Idle	0.17	1	1,663	3,216.0	0.1	0.1	17,829.50	0.49	0.55
	20	80% RPM	0.08	1	16869.6	3,216.0	0.1	0.1	90,421.06	2.50	2.81
TRT Run 4 Engine	15	Idle	0.17	2	1,663	3,216.0	0.1	0.1	26,744.26	0.74	0.83
	15	80% RPM	0.08	2	16869.6	3,216.0	0.1	0.1	135,631.58	3.75	4.22
<b>Total, tpy</b>									<b>459</b>	<b>0.01</b>	<b>0.01</b>

(1) CO2 emission factors obtained from AFCEC 2013.

CH4 and N2O emission factors were derived from Table A-101 for jet fuel in EPA's Inventory of U.S. Greenhouse Gas Emissions and Sinks, 1990-2005, using density of JP-8 as 6.8 lb/gallon.

Table A-34. McGuire Comparison of Emissions

Annual Emissions, Tons/year						
Baseline	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	3.21	49.03	83.34	7.43	0.39	0.39
AGE	0.01	0.01	0.09	0.00	0.00	0.00
Engine Tests	0.14	2.01	0.55	0.09	0.01	0.01
POVs	5.12	110.72	5.20	0.07	0.21	0.12
<b>Total</b>	<b>8.48</b>	<b>161.78</b>	<b>89.18</b>	<b>7.59</b>	<b>0.61</b>	<b>0.53</b>
Proposed Action	VOC	CO	NOx	SO2	PM10	PM2.5
Aircraft Ops	26.19	100.37	294.03	17.32	1.13	0.96
AGE	0.01	0.02	0.17	0.00	0.01	0.01
Engine Tests	1.53	5.23	1.38	0.17	0.02	0.01
POVs	4.75	126.34	3.97	0.09	0.22	0.12
<b>Total</b>	<b>32.48</b>	<b>231.97</b>	<b>299.54</b>	<b>17.58</b>	<b>1.38</b>	<b>1.11</b>
<b>Net Increase</b>	<b>24.01</b>	<b>70.19</b>	<b>210.36</b>	<b>9.99</b>	<b>0.77</b>	<b>0.58</b>

Table A-35. McGuire Comparison of HAP Emissions

Annual HAP Emissions, tons/year														
Baseline	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	0.17	0.00	0.00	0.00	0.01	0.03	0.00	0.01	0.00	0.01	0.00	0.00	0.29	0.02
AGE	0.02	0.01	0.00	0.00	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
<b>Total</b>	<b>0.20</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.02</b>	<b>0.03</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.01</b>	<b>0.00</b>	<b>0.00</b>	<b>0.29</b>	<b>0.02</b>
Proposed Action	Form-aldehyde	Acet-aldehyde	Acrolein	Naphthalene	Benzene	Toluene	Ethyl-benzene	Xylenes	Styrene	Chloroform	Chloromethane	1,3-Dichloropropene	Methylene Chloride	Vinyl Acetate
Aircraft Ops	3.72	1.29	0.74	0.16	0.51	0.19	0.05	0.09	0.09	0.03	0.01	0.01	0.65	0.05
AGE	0.03	0.02	0.00	0.00	0.02	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Engine Tests	0.08	0.04	0.01	0.03	0.01	0.00	0.01	0.01	0.00	0.00	0.00	0.01	0.00	0.00
<b>Total</b>	<b>3.83</b>	<b>1.35</b>	<b>0.75</b>	<b>0.20</b>	<b>0.54</b>	<b>0.20</b>	<b>0.06</b>	<b>0.09</b>	<b>0.09</b>	<b>0.03</b>	<b>0.01</b>	<b>0.02</b>	<b>0.65</b>	<b>0.05</b>
<b>Net Increase</b>	<b>3.63</b>	<b>1.34</b>	<b>0.75</b>	<b>0.19</b>	<b>0.52</b>	<b>0.17</b>	<b>0.06</b>	<b>0.08</b>	<b>0.09</b>	<b>0.02</b>	<b>0.01</b>	<b>0.01</b>	<b>0.36</b>	<b>0.03</b>

Table A-36. McGuire Comparison of GHG Emissions

Annual GHG Emissions, metric tons/year				
Baseline	CO2	CH4	N2O	CO2e
Aircraft Ops	20450	0.57	0.64	20659
AGE	2134	0.06	0.07	2157
Engine Tests	237	0.01	0.01	239
POVs	3543	0.00	0.00	3543
<b>Total</b>	<b>26363</b>	<b>0.63</b>	<b>0.71</b>	<b>26597</b>
Proposed Action	CO2	CH4	N2O	
Aircraft Ops	47195	1.25	1.41	47657
AGE	3859	0.11	0.12	3900
Engine Tests	459	0.01	0.01	464
POVs	4359	0.00	0.00	4359
<b>Total</b>	<b>55872</b>	<b>1.37</b>	<b>1.54</b>	<b>56379</b>
<b>Net Increase</b>	<b>29509</b>	<b>0.74</b>	<b>0.83</b>	<b>29782</b>

Table A-37. Emission Factors, AFCEC, 2015

2015							
On-Road Trucks	VOC	CO	NOx	SOx	PM	CO2	
Emission factor, heavy duty trucks, gm/mi	0.617	1.782	2.498	0.012	0.097	1243.4	

Table A-38. Emission Source Data for Construction - McGuire

Construction Activity/Equipment Type	HP Rating	Ave. Daily Load Factor	Number Active	Hours/Day	Work Days	2015					
						(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)	(lb/day)
						ROG	CO	NOX	SOX	PM	CO2
<b>Construction - Building Facilities</b>											
Air Compressor - 100 CFM	50	0.6	1	6		0.09455048	0.47201897	1.59554327	0.044862233	0.10062742	236.289135
Concrete-Industrial Saw	84	0.73	1	6		0.27221926	2.35429505	2.68401671	0.094666023	0.36896764	482.735755
Crane	190	0.3	1	6		0.14924225	0.37005106	1.71237822	0.074866893	0.12148702	399.946309
Forklift	94	0.48	1	6		0.09577876	0.80888051	0.9060315	0.060326098	0.16169322	355.519511
Generator	45	0.6	1	8		0.11346058	0.56642277	1.91465192	0.053834679	0.12075291	283.546961
Concrete Trucks (1)	NA	NA	60	15		1.22423334	3.53579224	4.95645848	0.023810049	0.19246456	2467.11788
Supply Trucks (1)	NA	NA	60	20		1.63231112	4.71438965	6.6086113	0.031746732	0.25661941	3289.49051
Fugitive Dust (2)	NA	NA	2	8						13.45	
					250	3.58179579	12.8218502	20.3776914	0.384112707	14.7726122	7514.64606
<b>Construction - Taxiways/Runway</b>											
Haul Truck - 20 CY - Asphalt (1)	489	0.6	4	18		7.24234382	29.6497906	75.7847769	4.41365647	8.47649254	24979.5948
Asphalt Spreader - BG 240C	153	0.6	2	8		0.8617276	3.77851013	9.72207506	0.341440284	0.96065309	1735.73736
Compactive Roller	165	0.5	2	8		0.64270919	2.79649216	6.91528097	0.298821998	0.80700086	1560.29376
Fugitive Dust (2)	NA	NA	2	8						13.45	
Grader - 14H	215	0.5	2	8		0.67778145	2.3514555	6.91240052	0.366767542	0.73055537	2033.594
Loader - 938G	160	0.5	2	8		1.97248561	7.33701543	12.3406703	0.353825785	1.55146662	1762.08909
Oil Truck	300	0.4	1	8		0.31360677	0.58021071	2.40202138	0.183811512	0.31805625	1135.22529
Vibratory Compactor - CB 355D	105	0.75	2	8		1.54745487	7.01107023	13.1352397	0.351751219	1.07737943	1635.26332
					250	13.2581093	53.5045448	127.212465	6.31007481	27.3716042	34841.7976
<b>Construction - Pad/Apron</b>											
Haul Truck - 20 CY - Asphalt (1)	489	0.6	4	18		7.24234382	29.6497906	75.7847769	4.41365647	8.47649254	24979.5948
Asphalt Spreader - BG 240C	153	0.6	2	8		0.8617276	3.77851013	9.72207506	0.341440284	0.96065309	1735.73736
Compactive Roller	165	0.5	1	8		0.3213546	1.39824608	3.45764049	0.149410999	0.40350043	780.14688
Fugitive Dust (2)	NA	NA	2	8						13.45	
Grader - 14H	215	0.5	1	8		0.33889073	1.17572775	3.45620026	0.183383771	0.36527769	1016.797
Loader - 938G	160	0.5	1	8		0.9862428	3.66850772	6.17033515	0.176912892	0.77573331	881.044547
Oil Truck	300	0.4	1	8		0.31360677	0.58021071	2.40202138	0.183811512	0.31805625	1135.22529
Vibratory Compactor - CB 355D	105	0.75	2	8		1.54745487	7.01107023	13.1352397	0.351751219	1.07737943	1635.26332
					250	11.6116212	47.2620632	114.128289	5.800367147	25.8270927	32163.8092
<b>Construction - Road/Bridge/Van Pad</b>											
Haul Truck - 20 CY - Asphalt (1)	489	0.6	4	18		7.24234382	29.6497906	75.7847769	4.41365647	8.47649254	24979.5948
Asphalt Spreader - BG 240C	153	0.6	2	8		0.8617276	3.77851013	9.72207506	0.341440284	0.96065309	1735.73736
Compactive Roller	165	0.5	2	8		0.64270919	2.79649216	6.91528097	0.298821998	0.80700086	1560.29376
Fugitive Dust (2)	NA	NA	2	8						13.45	
Grader - 14H	215	0.5	2	8		0.67778145	2.3514555	6.91240052	0.366767542	0.73055537	2033.594
Loader - 938G	160	0.5	2	8		1.97248561	7.33701543	12.3406703	0.353825785	1.55146662	1762.08909
Oil Truck	300	0.4	1	8		0.31360677	0.58021071	2.40202138	0.183811512	0.31805625	1135.22529
Vibratory Compactor - CB 355D	105	0.75	2	8		1.54745487	7.01107023	13.1352397	0.351751219	1.07737943	1635.26332
					90	13.2581093	53.5045448	127.212465	6.31007481	27.3716042	34841.7976
<b>Construction - Airfield Facilities - Other</b>											
Air Compressor - 100 CFM	50	0.6	1	6		0.09455048	0.47201897	1.59554327	0.044862233	0.10062742	236.289135
Concrete-Industrial Saw	84	0.73	1	6		0.27221926	2.35429505	2.68401671	0.094666023	0.36896764	482.735755
Crane	190	0.3	1	6		0.14924225	0.37005106	1.71237822	0.074866893	0.12148702	399.946309
Forklift	94	0.48	1	6		0.09577876	0.80888051	0.9060315	0.060326098	0.16169322	355.519511
Generator	45	0.6	1	8		0.11346058	0.56642277	1.91465192	0.053834679	0.12075291	283.546961
Concrete Trucks (1)	NA	NA	60	15		1.22423334	3.53579224	4.95645848	0.023810049	0.19246456	2467.11788
Supply Trucks (1)	NA	NA	60	20		1.63231112	4.71438965	6.6086113	0.031746732	0.25661941	3289.49051
					250	3.58179579	12.8218502	20.3776914	0.384112707	1.32261218	7514.64606
<b>Construction - Building Renovations</b>											
Air Compressor - 100 CFM	50	0.6	1	6		0.09455048	0.47201897	1.59554327	0.044862233	0.10062742	236.289135
Concrete-Industrial Saw	84	0.73	1	6		0.27221926	2.35429505	2.68401671	0.094666023	0.36896764	482.735755
Forklift	94	0.48	1	6		0.09577876	0.80888051	0.9060315	0.060326098	0.16169322	355.519511
Generator	45	0.6	1	8		0.11346058	0.56642277	1.91465192	0.053834679	0.12075291	283.546961
Supply Trucks (1)	NA	NA	60	10		0.81615556	2.35719482	3.30430565	0.015873366	0.12830971	1644.74525
					90	1.39216464	6.55881212	10.4045491	0.2695624	0.88035089	3002.83662

Renovations require 90 days

Assumptions: work days calculated based on assumption that 20,000 sf buildings require 250 days; 340,000 sf of paving/apron requires 250 days.

(1) Number Active - miles/round trip, Hours/Day are daily trips

(2) Number Active is acres disturbed at one time; lbs/day is lbs/acre-day

(3) HP Rating = cubic feet of demolished buildings; lbs/day is lbs/1000 cf

Table A-39. Construction Emissions - McGuire

Construction Project	Emissions, tons/year											
	Square feet of building/ square feet of paving	CO	NOx	VOC	SOx	PM10	PM2.5	Fugitive PM10	Fugitive PM2.5	Total PM10	Total PM2.5	Total CO2, Metric tons/year
<b>Option 1 - 2015</b>												
Project #1 - Addition to Hangar 3333	17,892	1.43	2.28	0.40	0.04	1.65	1.64	0.62	0.13	2.27	1.77	762.34
Project #2 - Addition to Hangar 3336	18,206	1.46	2.32	0.41	0.04	1.68	1.66	0.64	0.13	2.32	1.80	775.72
Project #3 - Internal Renovations to Hangar 3322	0	0.30	0.47	0.06	0.01	0.04	0.04	0.00	0.00	0.04	0.04	122.59
Project #4 - New Simulator Building	6,700	0.54	0.85	0.15	0.02	0.62	0.61	0.09	0.02	0.71	0.63	285.47
Project #5 - (Option 1) Modifications to Existing Parking Ramp and Taxiway	160,074	4.28	10.18	1.06	0.51	2.19	2.17	3.96	0.83	6.15	3.00	2,529.83
Project #6 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	1,137	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88
<b>Total Option 1</b>		<b>8.01</b>	<b>16.11</b>	<b>2.08</b>	<b>0.62</b>	<b>6.18</b>	<b>6.12</b>	<b>5.30</b>	<b>1.11</b>	<b>11.48</b>	<b>7.23</b>	<b>4,479.82</b>
<b>Option 2 - 2015</b>												
Project #1 - Addition to Hangar 3333	17,892	1.43	2.28	0.40	0.04	1.65	1.64	0.62	0.13	2.27	1.77	762.34
Project #2 - Addition to Hangar 3336	18,206	1.46	2.32	0.41	0.04	1.68	1.66	0.64	0.13	2.32	1.80	775.72
Project #3 - Internal Renovations to Hangar 3322	0	0.30	0.47	0.06	0.01	0.04	0.04	0.00	0.00	0.04	0.04	122.59
Project #4 - New Simulator Building	6,700	0.54	0.85	0.15	0.02	0.62	0.61	0.09	0.02	0.71	0.63	285.47
Project #5 - (Option 2) Modifications to Existing Parking Ramp and Taxiway	12,029	0.32	0.77	0.08	0.04	0.16	0.16	0.02	0.00	0.19	0.17	190.11
Project #6 - New Hydrants and Fuel Lines and Demolition of Existing Hydrants	1,137	0.01	0.01	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	3.88
<b>Total Option 2</b>		<b>4.05</b>	<b>6.70</b>	<b>1.10</b>	<b>0.15</b>	<b>4.16</b>	<b>4.11</b>	<b>1.37</b>	<b>0.29</b>	<b>5.52</b>	<b>4.40</b>	<b>2,140.10</b>

## **APPENDIX B**

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### ***Agency Coordination***





## State of New Jersey

DEPARTMENT OF ENVIRONMENTAL PROTECTION  
AIR QUALITY MANAGEMENT  
BUREAU OF AIR QUALITY PLANNING

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CHRIS CHRISTIE  
*Governor*

KIM GUADAGNO  
*Lt. Governor*

BOB MARTIN  
*Commissioner*

May 22, 2014

Kevin Shupe  
Environmental Scientist  
GS-13 National Guard Bureau  
ANG Readiness Center NGB/A7AN Shepperd Hall  
3501 Fetchet Ave Andrews AFB, MD 20762

Dear Mr. Shupe:

The purpose of this letter is to address the National Guard's May 6, 2014 email to Angela Skowronek, of my staff, requesting concurrence from the New Jersey Department of Environmental Protection (Department) that the Federal General Conformity requirements have been met for the proposed KC46-A Alternative Beddown Location project at Joint Base McGuire-Dix-Lakehurst (JB M-D-L). The Department has reviewed the proposed project to ensure its emissions conform to New Jersey's State Implementation Plan (SIP).

The Federal General Conformity regulations provide Federal agencies with the flexibility to establish General Conformity budgets with the State in order to meet the requirements of the regulation. General Conformity budgets for Volatile Organic Compounds (VOC's) and Oxides of Nitrogen (NOx) were established for McGuire Airforce Base (McGuire) in New Jersey's 8-hour Ozone State Implementation Plan (SIP) Revision dated October 29, 2007. The 2011 VOC and NOx General Conformity budgets included in the SIP for McGuire are in effect and will remain in effect until further notice. McGuire has confirmed that the VOC and NOx air emissions associated with the proposed KC46-A Alternative Beddown Location project at JB M-D-L will be included in the budget calculation for the base. Therefore, the Department concurs that the General Conformity requirements have been met for the proposed KC-46-A Alternative Beddown Location project at JB M-D-L.

If you have any questions concerning this matter, please contact Angela Skowronek, of my staff, at (609) 292-6722.

Sincerely,

Sharon Davis  
Section Chief  
Bureau of Air Quality Planning